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Department of Water Resources

BULLETIN No. 94-13

LAND AND WATER USE IN PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

Volume I: Text

JUNE 1965

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Director
Department of Water Resources

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PREVIOUS SERIES 94 BULLETINS

Bulletin 94 series is being published by the Department of Water Resources for the information and use of all interested agencies and the general public. Earlier bulletins in this series are:

Bulletin No. 94-1, "Land and Water Use in Tule River Hydrographic Unit".

Bulletin No. 94-2, "Land and Water Use in Trinity River Hydrographic Unit".

Bulletin No. 94-3, "Land and Water Use in Yuba-Bear Rivers Hydrographic Unit".

Bulletin No. 94-4, "Land and Water Use in Smith River Hydrographic Unit".

Bulletin No. 94-5, "Land and Water Use in Shasta-Scott Valleys Hydrographic Unit". (Preliminary Edition)

Bulletin No. 94-6, "Land and Water Use in Klamath River Hydrographic Unit".

Bulletin No. 94-7, "Land and Water Use in Mad River-Redwood Creek Hydrographic Unit".

Bulletin No. 94-8, "Land and Water Use in Eel River Hydrographic Unit". (Preliminary Edition)

Bulletin No. 94-10, "Land and Water Use in Mendocino Coast Hydrographic Unit". (Preliminary Edition)

Bulletin No. 94-11, "Land and Water Use in Russian River Hydrographic Unit". (Preliminary Edition)

Bulletin No. 94-12, "Land and Water Use in Sacramento Valley West Hydrographic Unit". (Preliminary Edition)

Bulletin No. 94-13, "Land and Water Use in Putah-Cache Creeks Hydrographic Unit". (Preliminary Edition)

Bulletin No. 94-14, "Land and Water Use in American River Hydrographic Unit". (Preliminary Edition)

FOREWORD

In 1956, the State Legislature declared:

> "... that in providing for the full development and utilization of the water resources of this State it is necessary to obtain for consideration by the Legislature and the people, information as to the water which can be made available for exportation from the watersheds in which it originates without depriving those watersheds of water necessary for beneficial use therein ..."

The Department of Water Resources was therefore directed to conduct the necessary investigations to compile this information.

For purposes of these studies, the State was divided into major hydrologic areas which, in turn, were subdivided into hydrographic units, generally comprising watersheds of individual rivers. Basic data on water use, land use, land classification, streamflows, ground water, and water quality are being collected by hydrographic units throughout the State. The collection and processing of these data and the publication of the results, for use by the Legislature and all others concerned, are being accomplished in two phases.

The first phase is concerned with the land and water use and land classification data. Reports of the Bulletin No. 94 series present these data for individual hydrographic units before the other studies are completed for the same areas. Following collection and processing of this material, these bulletins are distributed in preliminary form and reviewed at public hearings. Final editions are then published including summaries of the hearings and resulting revisions. These bulletins are an essential source of data for the subsequent water requirements studies, and when complete, will provide detailed data for the entire State.

This land and water use report is the thirteenth of the series to be published in the first phase of the investigations. It is the final edition of Bulletin No. 94-13 following public hearings held in the Putah-Cache Creeks area in January 1965.

The second phase begins with an inventory of water resources in each area, including streamflows, ground water, and water quality characteristics. Estimates of future water requirements to be based on the land and water use studies and projections of foreseeable future development, are also being made. Results of these water resources and water requirements studies will be published in the second series of reports. These will be designated the Bulletin No. 142 series, and generally cover groups of hydrographic units.

These water resources and future water requirements bulletins will provide the basis for outlining the additional projects

needed to meet the State's growing water needs. By interrelating the projected water requirements of all areas of the State with the available local supplies, by decades, a recommended sequence and timing for the State's future water development plans will be established. Besides thus forming the chief basis for the Department of Water Resources' all important project staging program, the data on water resources and water requirements will be a most valuable guide for water development planning by federal and local, as well as state agencies.

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ACKNOWLEDGMENT

The Department of Water Resources gratefully acknowledges information contributed by the numerous water users and residents of the Putah-Cache Creeks Hydrographic Unit and various agencies of the federal, state, and local governments.

STATE OF CALIFORNIA—RESOURCES AGENCY

WILLIAM E. WARNE, *Director*

DEPARTMENT OF WATER RESOURCES

P.O. BOX 388

SACRAMENTO

March 23, 1965

Honorable Edmund G. Brown, Governor
and Members of the Legislature
of the State of California

Gentlemen:

I have the honor to transmit Bulletin No. 94-13, entitled "Land and Water Use in Putah-Cache Creeks Hydrographic Unit", the thirteenth of a series of reports of the Department of Water Resources, which present detailed basic data of land use, classification of land, water use, and apparent water rights within certain hydrographic units of the State. These studies are being conducted pursuant to legislation sponsored by former Senator Edwin J. Regan and codified under Section 232 of the Water Code.

The preliminary edition of this bulletin was published in April 1964 and was subsequently distributed for review. In January 1965, the Department of Water Resources held public hearings to receive comments from interested individuals and agencies of findings set forth in the bulletin. After consideration of these comments, necessary revisions were made.

The information contained in this series of reports will provide a basis for future estimates of the amount of water which originates within each watershed, the amount which can be used beneficially within each area, and the amount of surplus or deficiency if any. The completed series will provide invaluable reference material relating our water resources to land classification and use.

The data presented in this bulletin will help concerned interests determine how best to develop and use the water resources of the Putah-Cache Creeks Hydrographic Unit. The bulletin discusses history, natural features, climate, and economy of the unit. Maps of present land use and classification of lands illustrate the text.

Sincerely yours,

William E. Warne

Director

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

EDMUND G. BROWN, Governor of California
HUGO FISHER, Administrator, The Resources Agency
WILLIAM E. WARNE, Director, Department of Water Resources
ALFRED R. GOLZE', Chief Engineer
JOHN M. HALEY, Acting Assistant Chief Engineer

DELTA BRANCH

Carl A. Werner . . . . . .Branch Chief
M. Guy Fairchild . . . . . Chief, Planning Section

The investigation leading to this report
was conducted by
and the preliminary report prepared by

Robert F. Fingado . . . . . Senior Engineer, Water Resources

and

George W. Deatherage . . . . . Senior Engineer, Water Resources

Assisted by

John M. Doherty. . . . . Assistant Civil Engineer
Frederick E. Stumpf . . . . .Associate Land and Water Use Analyst
Allan R. Black . . . . . Assistant Land and Water Use Analyst
Charles L. Ferchaud . . . . Assistant Land and Water Use Analyst
Darryl C. McCalister . . . . . Engineering Aid II

Preparation of the final report
was under the supervision of

James L. Welsh . . . . . Senior Engineer, Water Resources

Assisted by

Robert R. Stuart . . . . . Assistant Civil Engineer
Paul Garcia . . . . . Water Resources Technician I

Statewide aspects of the
Water Resources and Water Requirement Program
are coordinated under the direction of the
Division of Resources Planning

Wesley E. Steiner . . . . . Acting Division Engineer
Meyer Kramsky. . . . . Chief, Statewide Investigations Branch
Ralph G. Allison. . .Acting Chief, Planning Investigations Section

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----O----

WILLIAM M. CARAH
Executive Secretary

ORVILLE L. ABBOTT
Engineer

PUBLIC HEARING
on
Preliminary Edition
of
Bulletin No. 94-13,
"Land and Water Use in Putah-Cache Creeks Hydrographic Unit"

In accordance with Section 232 of the Water Code, the State Department of Water Resources held public hearings on January 14, 1965, in Pope Valley, California, and January 21, 1965, in Kelseyville, California, to receive comments from agencies, groups, and local interests on the preliminary edition of Bulletin No. 94-13, "Land and Water Use in Putah-Cache Creeks Hydrographic Unit". The hearings were attended by about 70 persons, including local people, and representatives from federal, state and local governmental agencies.

After consideration of both verbal and written comments, it was concluded by the department that many suggested revisions be incorporated in the bulletin before final publication.

Transcripts of the January 14 and 21, 1965, public hearings and copies of the department's response to written comments, are on file with the Department of Water Resources in Sacramento and are available for review by the public.

Verbal comments were made at the January 14, 1965 hearing by the following persons:

Mr. C. F. Alexander, 3645 Dartmouth Drive, Napa, California
Mr. N. R. Blanchard, Director, Pope Valley Farm Center, Pope Valley, California
Mrs. Joan Burns, Pope Valley, California
Mr. Joseph E. Carson, United States Bureau of Reclamation, 1010 West Salvador Avenue, Napa, California
Mr. Joseph Ely, United States Mendocino National Forest
Mr. Robert J. LaRue, Coordinator, Napa County, Napa, California
Mrs. Southall R. Pfund, Box 26, Pope Valley, California
Mrs. Delia A. Swift, Chiles Star Route, St. Helena, California

Verbal comments were made at the January 21, 1965, hearing by the following persons:

Mr. Joseph E. Carson, United States Bureau of Reclamation, 1010 West Salvador Avenue, Napa, California
Mr. David J. Cox, Lake County Water Commission, Kelseyville, California
Mr. Willard D. Hansen, Manager, Lake County Flood Control and Water Conservation District, Lakeport, California
Mr. Frank Hartman, P. O. Box 152, Middletown, California

Written comments were received from the following:

Mrs. Leonora Bennett Luntsford, 1143 Mound Street, Alameda, California
Mr. Harry Mortensen, President, East Lake Soil Conservation District, Middletown, California
Honorable DeWitt Nelson, Director, Department of Conservation, State of California, Sacramento, California

CHAPTER I. INTRODUCTION

This bulletin presents basic data on land and water use in the Putah-Cache Creeks Hydrographic Unit. These data cover present land and water use, classification of lands, systems used to divert surface water, histories of diversions, apparent water rights pertinent to each diversion, purpose and extent of use of diversions, seasonal quantities of water diverted during 1960, and an estimate of present consumptive use of water in the unit. A general description and a brief history of the area are also included.

These basic data were gathered during the period 1959-61 in compliance with Chapter 61, Statutes of 1956, as amended by Chapter 2025, Statutes of 1959, and codified in Section 232 of the Water Code of the State of California. This legislation provides for an inventory of water resources and water requirements of the State. This is the thirteenth in a series of bulletins being prepared under this authorization. The text of Section 232, with a discussion of its history and implications, is included in this bulletin as Appendix A.

Data presented in this bulletin will provide the basis for a future determination of the quantities of water reasonably required for future beneficial use within the Putah-Cache Creeks Hydrographic Unit. Preliminary estimates of water use and related information were published in the following: State Water Resources Board Bulletin No. 14, "Lake County Investigation," July 1957; and Department of Water Resources Bulletins: No. 20, "Interim Report Cache Creek Investigation," April 1958; No. 58, "Northeastern Counties Investigation," June 1960; No. 90, "Clear Lake-Cache Creek Basin Investigation," March 1961; and No. 99, "Reconnaissance Report on Upper Putah Creek Investigation," March 1962. The final determination of the water requirements will be based on estimates of future: (1) land use, (2) economic patterns, (3) population, (4) industrial and agricultural development, and (5) recreational needs.

The data presented herein have been reviewed in preliminary form by the local water users. The changes submitted by the local water users were reviewed in the field and adjustments have been made where warranted.

Organization of Report

This bulletin consists of five chapters, four appendices, and three plates. Chapter I contains a general description and brief history of the Putah-Cache Creeks Hydrographic Unit. Chapter II presents data on present uses of water and includes information pertaining to surface water diversion systems, water rights, quantities of water diverted, and consumptive use. Chapter III includes a history of the land use and a tabulation of present land use. Chapter IV includes a tabulation of lands classified with regard to their potential for irrigated agriculture and for recreational purposes. Chapter V summarizes the data presented in the bulletin.

Appendix "A" presents the text of Section 232 of the California Water Code and a discussion of the pertinent responsibilities and work program of the Department of Water Resources. Appendix "B" lists related investigations and other references used in the preparation of this report. Appendix "C" contains a short summary of California water law and a tabulation of applications to appropriate water in the Putah-Cache unit as filed with State Water Rights Board. Appendix "D" presents the text of two court decrees pertinent to water use in the Hydrographic Unit.

Plate 1 is a map showing the general location of the Putah-Cache Creeks Hydrographic Unit, the subunits, and the selected climatological stations. Areas of present land uses and the location of diversion systems are shown on Plate 2. The classification of lands is shown on Plate 3.

General Description of Area

The Putah-Cache Creeks Hydrographic Unit lies within the Coast Range, about 70 miles north of San Francisco Bay, and encompasses most of Lake County, part of Napa County, and small portions of Colusa, Mendocino, and Yolo Counties as shown on Plate 1, "Location of Unit." The northern half of the unit contains the Clear Lake-Upper Cache Creek Basin watershed and occupies 809 square miles of Lake County, 103 square miles of Colusa County, 35 square miles of Yolo County, and 3 square miles of Mendocino County. The southern portion contains the upper watershed of Putah Creek and occupies 207 square miles of Lake County and 362 square miles of Napa County. The unit is bounded by the Eel River and Stony Creek watersheds on the north, and by the Russian and Napa Rivers watersheds on the west and south and by the Sacramento Valley Floor on the east.

The Clear Lake Basin and Cache Creek watersheds drain approximately 950 square miles in the northern half of the unit. Clear Lake, located approximately in the center of Lake County, is fed primarily by Kelsey Creek from the south and Scotts Creek and Middle Creek from the north. Cache Creek originates at the southern outlet of Clear Lake and flows in an easterly direction through a mountainous area to its confluence with the North Fork of Cache Creek, approximately 8.0 miles below Lower Lake, and with Bear Creek, about 6.0 miles above Rumsey. These are the two major tributaries of Cache Creek.

The Putah Creek drainage area (about 569 square miles) lies within the northern portion of Napa County and the southern portion of Lake County. It is a generally mountainous area, about 20 miles wide at the widest point and extends about 50 miles in a northwest to southeast direction. Putah Creek flows in a southeasterly direction from its headwaters near Whispering Pines to

Monticello Dam near Winters where it leaves the unit. The major tributaries of Putah Creek are Etcuera, Hunting, Soda, St. Helena, Butte, and Pope Creeks.

For purposes of this report, the Putah-Cache Creeks Hydrographic Unit has been divided into nine subunits shown on Plate 1, "Locations of Unit." The areas of these subunits are shown in Table 1.

TABLE I

AREA OF SUBUNITS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

(in acres)

Subunit	Colusa County	Lake County	Mendocino County	Napa County	Yolo County	Total Acres	Total Sq.Miles
Bear Creek	65,787	56,304	0	0	21,942	144,033	225
Berryessa	0	0	0	153,420	0	153,420	240
Big Valley	0	88,593	980	0	0	89,573	140
Indian Valley	202	127,144	0	0	0	127,346	199
Lower Lake	0	85,425	0	0	0	85,425	133
Middletown	0	132,117	0	28,431	0	160,548	251
Pope Valley	0	71	0	49,810	0	49,881	78
Scott Valley	0	60,587	739	0	0	61,326	96
Upper Lake	0	100,174	326	0	0	100,500	157
TOTAL	65,989	650,415	2,045	231,661	21,942	972,052	1,519

Historical and Present Development

Hunters and trappers of the Russo-American Fur Company were the first known white men to inhabit the Putah-Cache Creeks area. They were attracted as early as 1811 by the wild game that abounded near Clear Lake.

After the Indians of the Pomo tribe who inhabited the area at that time had been established on reservations, the population of settlers steadily increased, and farming of the fertile valleys became the major factor in developing the unit.

Among the first settlers in the unit were William Pope and Jose Berryessa. Both men obtained large grants of land from the Spanish Territorial Government in 1841. William Pope was granted the Rancho Locoallomi, currently referred to as Pope Valley, and Jose and Sista Berryessa were granted the Los Putas Rancho, later known as Berryessa Valley, which today is inundated by Lake Berryessa.

As settlement in Berryessa Valley increased after 1843, agriculture became more intensified with wheat, hay, barley and corn growing well. Fruit crops were not successful because of the late spring frosts. Today, most of the land in the Upper Putah Creek watershed is utilized in the production of mixed hay, pasture, and grain. The cattle industry, currently the major industry of the Upper Putah watershed, was introduced in 1857 when John Smittle brought 200 head of cattle into Berryessa Valley.

In the early 1840's, Salvador Vallejo settled much of what is now known as Big Valley. He was followed by Stone and Kelsey who ran cattle in Big Valley until they were killed by Indians in 1849. Further settlement did not take place until 1854 when Robert Gody settled near the site of the Stone-Kelsey cabin near the present community of Kelseyville. Settlers were soon arriving in number and it was not long until the valley portions of the unit were in private ownership.

Main Street,
City of Lakeport

Haying Operation
in
Big Valley

Early agricultural activity in Lake County was centered around the raising of cattle and hogs in several of the valleys near Clear Lake. Land under cultivation in Lake County increased from 9,000 acres in 1868 to almost 15,000 acres in 1880 with most of the acreage being planted in wheat. Through the years the agricultural pattern changed considerably. By 1960, 21,090 acres of the 39,620 acres under cultivation in the Lake County area were planted to deciduous orchard of which 13,920 acres were devoted to nut trees. Although the climate and soils appear to present an excellent potential for grape production in Lake County, a relatively insignificant 140 acres of grapes were in production in 1960.

The population growth in the unit has been relatively slow; in 1900 it was about 7,700 and in 1960, it was estimated at 14,200 an annual average increase of only 1.4 percent. This rate should increase greatly in the future with the ever increasing need for development of new recreational facilities.

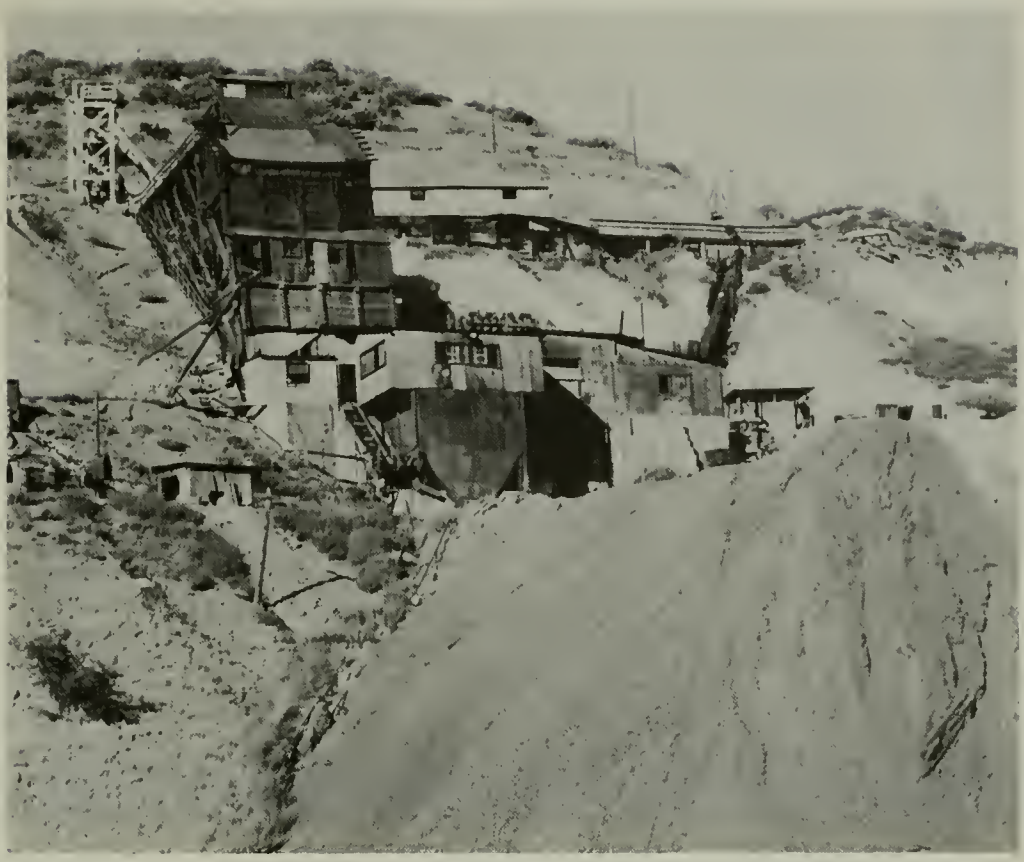
The main population centers in the unit lie within Lake County. Lakeport, the only incorporated city in the unit, is the county seat of Lake County with a 1960 population of 2,303. Other urban centers and their 1960 populations are: Middletown, 450; Kelseyville, 500; Upper Lake and vicinity, 600; and the remaining periphery of Clear Lake, approximately 3,000. Although there are other areas of population, they are small and do not effectively indicate urban potential. The southern portion of the unit, except for the Middletown area, is presently sparsely settled.

Mineral production, an important industry in the early history of the unit, began when mercury was first discovered west of Lakeport in the Mayacmas Mountains about 1860. The total production of mercury between 1869 and 1880

Picking Pears
Near Finley

California Fruit
Growers Association
Packing
Shed at Finley

Cinnebar Mine



Walnut Orchards
on Mt. Konocti

was about 5 million pounds. Following this peak, mercury production declined in importance in the unit except for brief periods during World War I and World War II when higher prices made mining profitable. Other minerals produced within the unit include: asbestos, diatomite, gem stone, crude perlite, volcanic cinders, sand and gravel, manganese, pumice, sulphur ore, and small amounts of silver. The major contribution to the mineral wealth is the production of crushed stone, sand, and gravel, most of which is produced in the Lake County portion of the unit near Clear Lake Highlands, Clear Lake Oaks, Kelseyville, and Lakeport. Over 388,000 short tons of sand and gravel and over 11,000 short tons of crushed stone were produced in 1961. Mineral production, although declining in statewide importance, has continued to be of importance to the local economy. In 1961, the production of sand and gravel was valued at $384,000, and the production of mercury, pumice, volcanic cinders, and sulphur ore was valued at $189,000.

The timber industry can be compared to that of the mineral industry in that it stimulated the early development of the area. After 1873 its importance declined due primarily to the decline in the demand for shoring timber used in the mines. Some lumbering activity took place prior to the turn of the century in the Howell Mountains, near St. Helena, but the supply of adequate timber resources dwindled rapidly, curtailing activity. In 1868 approximately 1,700,000 board-feet of lumber was cut and this was doubled by 1873; but by 1880, output had declined to about 1,000,000 board-feet. Presently, the only logging in the unit is a negligible amount in Mendocino National Forest.

Recreation and its related activities are a major factor in the growth and progress of the Putah-Cache Creeks Hydrographic Unit. Early authors wrote in glowing terms about the "beautiful streams of water that gush forth and find

Hobergs Resort
on
Cobb Mountain

Seigler Springs
Resort on Cobb
Mountain

their way to the nearest brooklet." 1/ In both Napa and Lake County, small resorts located near mineral springs became popular as convalescent spots for people of the Bay Area and the Sacramento Valley. A resort was established at Harbin Springs near Middletown as early as 1852. Aetna Springs, north of Pope Valley, was used as a resort in the 1870's with a peak of popularity in 1878, and Walter Springs, in the hills above Pope Valley, provided camping facilities and cottages for visitors as early as 1871. Today, changing customs and the completion of Monticello Dam have made water sports, fishing, and hunting a major attraction to the unit.

Presently, three distinct areas of recreational activity are evident in the unit. These are Cache Creek Basin in the center of Lake County; Cobb Mountain resort areas in the west central section of the unit; and Lake Berryessa at the southern end of the unit in Napa County.

The development of water-associated recreation in the Cache Creek Basin, which includes Clear Lake and the Blue Lakes, is indicated by the resorts, homes, and public parks that are found in the area, especially on the shorelines of the two lakes. The principal activities are swimming, boating, water skiing, and fishing for black bass, crappie, and catfish. Water-associated recreation in the Cache Creek Basin is a seasonal activity with a peak use during the major vacation period, July, August, and the early part of September. Wilsey and Ham, in a study of the Cache Creek Basin in 1958, estimated the number of user days of water-associated recreation around Clear Lake at 2,305,000 and gross expenditures by recreationists in the area of over 15 million dollars. Although these figures may be slightly overstated, they nevertheless indicate the importance of recreation to the economy of the unit.

1/ "History of Napa and Lake Counties," Slocum, Bowen and Company, 1881, page 32.

Monticello Dam
on
Putah Creek

Future Camp Site
on West Side of
Lake Berryessa

Most of the resort areas on Cobb Mountain were established before the turn of the century and continue to attract a considerable number of visitors during the summer months, June through September. The actual number of visitor-days of use of the mountain resorts is not available. The Cobb Mountain area, considered to be a year-round resort with a large tract of summer homes, is located in a mountainous region of relatively heavy timber growth. The resorts generally consist of a large lodge with numerous surrounding cabins and feature golf courses, hiking, horseback riding, swimming, and other outdoor recreational activities.

Lake Berryessa, created by the construction of Monticello Dam and the consequent inundation of Berryessa Valley in 1957, is situated at the lower end of the unit west of the Vaca Mountains. The maximum surface area of the lake is over 22,000 acres, however, the average surface area is about 19,000 acres. Approximately 2,000 acres of the land surrounding the lake are classified as recreational. As of 1960, there were 7 developed campgrounds with about 700 tent spaces, 460 trailer spaces, and 2 picnic areas distributed along the lake shore. Nine privately owned boat launching ramps were in service by 1960. The Bureau of Reclamation estimated the use of Lake Berryessa at 500,000 visitor-days in 1958 and at 941,000 visitor-days in 1961.

The recreation associated with Clear Lake and Cobb Mountain resort areas in Lake County and Lake Berryessa in Napa County has had a distinct effect upon the economy of the unit. The potential for continued recreational development is excellent and it will have even greater economic impact in years to come.

Transportation in the unit is limited to county and state highways. These are relatively well-maintained, hard-surfaced roads which generally provide two lane, medium duty service. There are about 650 miles of county road and

150 miles of state highways in the unit. State Routes 20, 29, and 37 provide access from the Redwood Highway on the west and the Bay Area on the south. State Routes 128, 20 and 16 provide access from the Sacramento Valley area.

There is no rail service to the unit. Airport facilities consist of three, county-operated, privately-owned airfields located near Kelseyville, Lower Lake, and Hobert Springs and several small, privately-owned air strips.

Soils

A wide variety of soils formed by the decomposition of various parent rock and modified by wide variations in climate and topography exists within the Putah-Cache Creeks Hydrographic Unit. These soils can best be segregated on the basis of their present and probable future utilization into three major soil or land use groupings: (1) the agricultural soils in and surrounding the various valleys, (2) the forested timber soils, and (3) the shallow upland range grazing soils.

The major agricultural soil bodies lie adjacent to the shores of Clear Lake and in the smaller valleys widely scattered throughout the hydrographic unit. Many acres of fine-textured basin soils were formed by the aggradation of Clear Lake. These dark colored basin soils are high in organic matter, fertile, and produce a wide variety of crops. They are particularly favored by orchardists for the production of irrigated pears and walnuts in the vicinity of Upper Lake and Kelseyville. The recent alluvial soils typified by deep, permeable profiles are found adjacent to the many creeks that transect the valleys of the region. Like the basin soils, the recent alluvial soils though limited in acreage, are highly prized for fruit and nut crop production. The older terrace alluvial soils were differentiated from the recent alluvial soils because they possess dense subsoil clay or hardpan layers that seriously

inhibit the penetration of both water and plant roots. The residual or upland agricultural soils are rather fertile, highly permeable, well-drained, and generally red in color but tend to vary widely in depth. These soils generally have the least agricultural value, and to date have not been extensively developed.

The second major grouping of soils are those best suited to forest management and recreational use. These soils are generally very red in color, occur in zones high in rainfall and have a dense vegetative cover composed of mixed conifers, madrone, and oaks.

The third grouping, the shallow upland range and grazing soils, are soils which generally occur in the more arid eastern portions of the hydrographic unit. These soils are characteristically shallow in depth and occur on steep broken terrain. They are frequently brush-covered but where brush control practices have been employed, they produce a fairly good annual winter-spring grass cover suitable for sheep or cattle grazing. Even though some of these soils could be considered as irrigable, their isolated position and small parcel size preclude development for irrigated agriculture.

Natural Features

The Putah-Cache Creeks Hydrographic Unit covers an area of 1,519 square miles within Colusa, Lake, Mendocino, Napa, and Yolo Counties in the west central portion of the State. The unit is generally mountainous, varying in elevation from the water surface of Lake Berryessa, 440 feet at the spillway crest, to over 5,000 feet along the Pacific Ridge dividing Lake and Colusa Counties.

The regional topography of the Coast Range is characterized by northwestward trending ridges and valleys. These landforms are an expression of the prevailing geologic structure, the major faults and folds of which have a

northwest-southeast orientation. This topographic pattern is most obvious in the Cache Creek area but is more subdued in the Putah Creek area.

The entire Putah-Cache Creeks Hydrographic Unit is underlain by Jurassic and Cretaceous marine sediments, volcanics, and serpentine upon which, in places, continental sediments of the Cache formation and alluvium have been deposited. The ancient sediments were deposited in seas that occupied the region at various times during the Jurassic and Cretaceous periods and have undergone a long history of consolidation, deformation, and, in part, mild metamorphism. These formations have an aggregate stratigraphic thickness on the order of 30,000 feet.

The Jura-Cretaceous rocks are divided into four major geologic groups listed in order from oldest to youngest:

(1) Franciscan group
(2) Knoxville group
(3) Shasta group
(4) Chico group

The Franciscan group is characterized by hard, dark sandstone (graywacke), but it also includes moderate proportions of other rock types such as shale, chert, conglomerate, limestone, basalt, greenstone (metamorphosed volcanics), and serpentine. Serpentine is especially prevalent in the Upper Putah Creek Basin where it constitutes approximately one-fourth of the total surface area. Landslides are very common in the Franciscan, particularly in the serpentine. Zones of shearing and hydrothermal alterations are numerous in the Franciscan, so that a considerable part of it is sheared or contorted and contains zones of schist. Mineral products derived from the Franciscan include sand and gravel, decorative stone, stone riprap, quicksilver, magnesite, and chromite.

The Knoxville group consists primarily of shale, which occurs in a ratio of about 4:1 to interbedded sandstone. Shearing of the beds is less common in the Knoxville than in the Franciscan group.

A thick succession of massive, yellowish-brown to gray, marine sandstone, and gray shale overlies the Knoxville group. These sediments belong to the Shasta and Chico groups of Cretaceous age. The sandstone is generally fine to medium-grained and occurs in beds as thick as 15 feet. Blue Ridge and Rocky Ridge, located in the southeastern portion of the unit, are formed largely of the steeply dipping beds of the Shasta and Chico groups.

Marine conditions existed in at least a portion of the region in the early part of the Tertiary period. However, the extent of these seas is not known because the only exposures of Tertiary marine sediments occur in a limited area in the general vicinity of Lower Lake. These sediments consist of sandstone, shale, and conglomerate and contain fossils of the Martinez (Paleocene) and Tejon (Eocene) age.

Volcanic eruptions played a prominent part in the later geological development of the region lying generally south of Clear Lake. Volcanic action began in the Pliocene epoch and continued sporadically until perhaps a few thousands of years ago. The volcanic deposits of the area are divisible into two major series known as the Sonoma volcanics and the Clear Lake volcanics. The Mayacmas Mountains east of Clear Lake consist largely of the Sonoma volcanics of Pliocene age. The younger Clear Lake volcanics are evident in prominent land forms south of Clear Lake, such as Mt. Konocti, Mt. Hannah, Seigler Mountain, and Roundtop Mountain.

The most conspicuous natural feature within the Putah-Cache Creeks Hydrographic Unit is Clear Lake. Although Clear Lake has the sizable surface area of about 62 square miles and a perimeter of about 70 miles, the basin it occupies was probably even more extensive in late Pliocene time. The Cache formation which extends eastward from Clear Lake about 10 miles and has a maximum thickness of 6,500 feet, represents the alluvial and lake sediments that

collected in the ancestral Pliocene basin. Geologic evidence suggests that this basin extended southward from Clear Lake and was drained to the east by Cache Creek and to the west into the Russian River by Cold Creek. During the emplacement of the Clear Lake volcanic series, a lava flow blocked the eastern drainage, diverting the entire basin drainage to the western stream. This was followed, probably a few thousand years ago, by a landslide that descended from the southern side of the western gorge effectively blocking the western outlet, causing water to rise high in the basin and overflow across a sag in the lava flow on the east. The overflowing stream then cut a trench across the lava flow, thus lowering the lake about 60 feet to its present level.

Recent alluvium occurs extensively in the lowlands of the Lakeport-Kelseyville area, in the larger valleys of the region, and as narrow sinuous deposits along streams and creeks. Where it is sufficiently thick, as in Collayomi Valley where its thickness is approximately 300 feet, the alluvium constitutes an important source of ground water.

Climate

The climate of the Putah-Cache Creeks Hydrographic Unit is characterized by warm summers and mild winters. Over 95 percent of the annual precipitation occurs during the 7-month period, October through April, with the remainder distributed over May, June, and September. July and August are dry except in unusual years. Most of the precipitation occurs as rainfall although some snow may fall in the winter months at the higher elevations, but does not form a snow pack. Annual precipitation, influenced by the Coast Range on the west and Bartlett Mountain north of Clear Lake varies from about 20 inches in the Capay area to over 80 inches at the higher elevations west of Middletown.

Table 2 shows the mean annual precipitation adjusted to correspond to the 1911-1960 base period at selected stations within the Putah-Cache Creeks Hydrographic Unit. Location of the 14 selected stations are shown on Plate 1.

TABLE 2

MEAN* ANNUAL PRECIPITATION AT SELECTED STATIONS
IN OR NEAR PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

Station	Station Elevation (in feet)	Precipitation (in inches)	Period of record
Hobergs	2,960	55.23	1930-1962
Helen Mine	2,760	82.10	1900-1922
Cobb	2,520	59.98	1923-1962
Hopland 8NE	2,510	37.05	1939-1962
Mt. St. Helena	2,300	60.74	1901-1913
Adobe Creek	1,530	39.55	1945-1962
Upper Lake 7W	1,520	37.36	1940-1962
Lower Lake 1W	1,450	28.86	1935-1962
Kelseyville	1,385	23.77	1932-1962
Upper Lake R.S.	1,347	33.45	1886-1962**
Lakeport	1,343	27.36	1900-1962
Middletown	1,122	42.38	1938-1962
Monticello	380	21.69	1914-1947
Capay 4W	290	21.93	1889-1962

* Arithmetic average adjusted for a base period of 1911-1960.
** Broken record.

Temperatures in the unit are influenced by the prevailing air masses which generally cover the area. A marine air mass occupies the area in the winter and as a rule the amount of precipitation keeps the temperatures from dropping below 20 degrees. In the summer a continental tropical air mass prevails resulting in hot daytime temperatures with moderate cooling at night.

The average annual temperatures and average length of frost-free period for 7 representative stations are shown in Table 3 on page 22. The temperatures presented are the arithmetic averages of the daily minimum and maximum temperatures in degrees Fahrenheit, for the indicated period of record.

The length of frost-free periods shown in Table 3 represents the average period in days between the last day in spring and the first day in fall when the daily minimum temperature fell below 32 degrees Fahrenheit. Location of the 7 representative stations in Table 3 are shown on Plate 1.

Water Resources

The water resources of the Putah-Cache Creeks Hydrographic Unit originate from the winter precipitation, occurring as ground water in the limited ground water basins and as surface runoff in the streams of the area. The surface runoff of the upper Cache Creek watershed enters Clear Lake where a substantial portion is stored for later use outside the unit. The runoff of Putah Creek flows into Lake Berryessa where it is stored for subsequent diversion out of the unit. Although Monticello Dam provides almost full control of Putah Creek, a large percentage of the flow of Cache Creek is unregulated and wastes from the unit, particularly during years of heavy precipitation.

Records of flow are available for a number of stream gaging stations in the Putah-Cache Creeks Hydrographic Unit. Records from four selected stations, which measure runoff from approximately 1,400 square miles, or 92 percent of the hydrographic unit are summarized in Table 4 on page 23.

TABLE 3

RECORDED TEMPERATURES AT SELECTED STATIONS
IN OR NEAR PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

Station	Elevation (in feet)	Mean* temperatures in ° F. Max.	Mean* temperatures in ° F. Min.	Extreme temperatures in ° F. Max.	Extreme temperatures in ° F. Min.	Average frost-free period (days)	Period of record
Upper Lake R.S.	1,347	72.9	39.4	111	11	143	1946-52
Lakeport	1,343	72.2	41.2	110	14	180	1940-52
Clear Lake Park	1,330	72.1	43.1	108	7	205	1943-52
East Park	1,205	74.1	43.4	112	3	200	1931-52
Ukiah	623	74.6	43.5	112	13	211	1931-52
Brooks	350	76.6	45.0	117	5	232	1931-52
Winters	132	75.7	47.1	112	18	266	1942-52

*Arithmetic average for years of record.

TABLE 4

RECORDED RUNOFF* AT SELECTED STATIONS
IN OR NEAR
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

	Putah Creek near Winters	North Fork Cache Creek near Lower Lake	Cache Creek near Lower Lake	Bear Creek near Rumsey
Period of Record	1931-1960	1931-1960	1945-1960	1956-1960
Drainage Area (sq. mi.)	577	198	528	96.8
Annual Discharge				
Minimum (af)	23,480	15,100	31,590	8,715
Year	1957	1931	1948	1957
Maximum (af)	1,004,000	422,800	741,600	90,800
Year	1941	1958	1958	1958
Average (af)	305,430	137,320	227,990	44,010
Discharge-1960 (af)	95,540	88,780	101,300	13,631
Percent of average	31	65	44	31
Summer Discharge (April - September)				
Minimum (af)	3,969	2,291	29,590	1,149
Year	1931	1931	1948	1959
Maximum (af)	206,460	78,165	282,810	25,404
Year	1941	1958	1958	1958
Monthly Discharge				
Minimum (af)	0	0	20	13
Month and year	8/55	(a)	3/55	8/60
Maximum (af)	359,200	175,400	229,400	37,040
Month and year	2/38	2/58	3/58	2/58
Instantaneous Discharge				
Minimum (cfs)	0	0	0.2	0
Date	8/55	(b)	3/15-3/23/50	(c)
Maximum (cfs)	81,000	20,300	8,000	5,340
Date	2/27/40	12/11/37	2/24/58	2/16/59

* Data obtained from USGS Water Supply Paper No. 1715.
(a) Zero flow occurred in several months of 1931, 1932, 1933, and 1934.
(b) Zero flow occurred several times in 1931, 1932, 1933, 1934, 1935, 1949, and 1956.
(c) Zero flow, 7/25/60 and 8/20/60.

CHAPTER II. WATER USE

Typical of the State of California in its history of water use, the Putah-Cache Creeks Hydrographic Unit has its history of investigations and proposals for water development dating from well before the turn of the century. At various times, there have been many proposals for the construction of reservoirs and utilization of lakes which were looked to as the key for firming water supplies both within and outside of the unit. One of the first studies conducted in the area was in the early 1870's when engineers examined Clear Lake as a possible source of domestic supply for the City of San Francisco. However, high evaporation losses resulted in abandonment of the idea.

The development of water in the unit for agriculture and water-associated recreation began prior to 1900. Although irrigation from both surface and ground water sources began before 1900, irrigation development did not become extensive until after the first World War. The earliest history of recreation was the establishment of a resort at Harbin Springs near Middletown in the mid 1850's and the sport fishing on Clear Lake, which is the largest natural lake entirely within the State.

The water use survey conducted for this report, results of which are discussed herein, was generally limited to the investigation of those individual uses of surface water exceeding 10 acre-feet per year. The survey developed information concerning: (1) location of the surface water diversion point, (2) description of the diversion system, (3) use of the diverted water, (4) amount of water diverted, and (5) the apparent water right under which the diversion was made.

Orchard
Irrigation
Near Finley

Sailing on
Lower Blue
Lake

Present Water Use

The present water requirements for irrigated agriculture, municipal, industrial, domestic, and recreational uses, are supplied from both surface and ground water. There was 18,174 acres of irrigated lands in the unit during 1960; 6,797 acres were supplied with surface water, and 11,377 acres were irrigated with ground water. Of the 6,797 acres supplied with surface water, 1,050 acres received some supplemental irrigation from ground water. In 1960, there were approximately 22 water service agencies in the unit supplying water for municipal and domestic uses; 8 utilized surface water, and 14 depended on ground water for their supply. Other consumptive uses of surface and ground water include stockwatering, incidental fire protection, numerous individual domestic, minor industrial, and miscellaneous uses. In addition to these consumptive uses, an ever increasing use of the unit's water is being made by water-associated recreation. The two major water-associated recreational areas are the Clear Lake Basin, including Clear Lake and the Blue Lakes, and Lake Berryessa.

Consumptive use of water is defined as water consumed by vegetation for transpiration and building of plant tissue, plus the water evaporated from adjacent soil and water surfaces. Based on the unit consumptive use values given in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements, State of California," and Department of Water Resources Bulletin No. 14, "Lake County Investigation," the consumptive use of applied water for irrigated agriculture during 1960, is estimated to have been 24,559 acre-feet in the Cache Creek basin and 5,367 acre-feet in the Putah Creek basin.

Gravity Diversion From Putah Creek

Cattle Grazing Near Upper Lake

Crop	Unit consumptive use of applied water in acre-feet per acre	
	Cache Creek	Putah Creek
Alfalfa	2.5	2.0
Pasture	2.3	2.3
Orchard	1.3	1.3
Field	0.9	0.7
Truck	0.8	0.7

Values from Bulletins Nos. 2 and 14.

The consumptive use of water for other purposes such as domestic, municipal, industrial, mining, etc. was not evaluated for this unit. One of the major losses of water in the unit is the annual evaporation from the surfaces of Clear Lake and Lake Berryessa. This is estimated to be 74,000 acre-feet annually for Lake Berryessa 3/ and to range from 139,000 acre-feet 1/ to 220,000 acre-feet 2/ annually for Clear Lake.

A total of 271 diversions of surface water were located in the unit in 1960. These are classified by primary use as follows:

Primary Use	Number of diversions
Irrigation	205
Stockwatering	24
Domestic	20
Municipal	10
Recreation	7
Industrial	3
Mining	2

Points of diversion, and main canals and/or pipelines used to convey the water, are delineated on Plate 2, "Land and Water Use." The diversions are listed by diversion location numbers in Table 5, "Descriptions of Surface Water Diversions" beginning on page 38, and alphabetically by owner in Table 7, "Index to Surface Water Diversions," beginning on page 73.

1/ "Cache Creek Project Report," McCreary, Koretsky & Hill, January, 1963.
2/ Department of Water Resources Bulletin No. 90, March 1961.
3/ USGS Water Supply Paper No. 1715.

In some situations, water users make efficient use of water by rediverting field runoff or spill collected from their own upstream diversion systems. In this investigation, such points of rediversion were not located. However, if return flow from another water user's operation was rediverted, or if there was doubt as to the origin of the water, then the diversion point was located. Diversion systems of water companies or groups of water users are considered as single units; individual customer distribution points are not located or shown on Plate 2.

Surface Water Diversions

The description, history, and other information relating to each surface water diversion was obtained through field inspections, interviews with the water user or his representative, and by reference to prior reports and official records. This information is summarized in Table 5. The data in the table are arranged by diversion location number with each subunit. All points of diversion in use during 1959 and those which had been used within the preceding five years, and the conduits used for delivery were delineated on aerial photographs. Reservoirs which had surface areas of about three acres or greater were also noted. Three acres were considered the minimum surface area that could be delineated on the aerial photographs. Reservoirs located along and operated in conjunction with canals and ditches which have been located at their origin are shown on Plate 2 but are not necessarily considered as separate systems nor assigned location numbers. Similarly, water supplies obtained from small intermittent streams intercepted by canal systems are not classed as separate diversions.

Surface water diversions are numbered to indicate their location by township, range, and section within the federal land survey system. Each section is subdivided into 40-acre plots, and lettered as illustrated on Plate 2.

Diversions are numbered within each of these 40-acre plots according to the order in which they were located. For example, diversion D14N/9W-32C1, which is shown on Sheet 6, of Plate 2 as "32C1," is the first diversion located in the northeast quarter of the northwest quarter of Section 32 in Township 14 North, Range 9 West, Mount Diablo Base and Meridian (MDB&M).

The purpose of each diversion, the quantity of water diverted during 1960, the extent of use, such as the number of acres irrigated, and the method of application of water are described. If the purpose listed is not the usual use for that diversion, notation is made in the remarks column. The extent of domestic use is specified only when five or more connections are served. Stockwatering less than 10 head of livestock is considered to be a domestic use.

The type of water right under which the respective diversions are considered to be made is indicated under the heading "Apparent Water Right." The determination of this item is based upon the best information available from the owner, from files of the State Water Rights Board, from official records, and from other sources. The amount of the right, if established and known, and a reference to the source of data are also included. Although this information is believed to be accurate, it is emphasized that it is not based on sworn claims or testimony and should in no way be construed to represent a conclusive determination of water rights.

Diversions based on appropriative rights are listed as "appropriative." Those that are not appropriative, but for which the area of use is apparently riparian to the streams or which the owner claims to be riparian, are listed as "riparian." Diversions listed as appropriative may also be riparian, no attempt was made in such cases to determine the riparian status.

For appropriative rights, the amount tabulated is that specified in the recorded filing, if found, or in the application filed with the State Water Rights Board, or in the latest permit or license.

Measurement of Diversions

Quantities of surface water diverted during 1960 were measured to further describe the diversion systems. The measured quantities do not necessarily represent average diversions, since during any single year the quantity diverted will be influenced by precipitation during the growing season, the available streamflow, and the nature of use. Considerations other than the available water supply, such as economic factors, may also affect the relation of any diversion record to typical operating conditions. No attempt was made to assess these factors.

Results of the measurements are summarized in Table 6, "Monthly Records of Surface Water Diversions," beginning on page 66. The total amount of water diverted at the 88 diversions which were measured was about 13,324 acre-feet of which 12,122 acre-feet were for irrigation and 1,202 acre-feet for urban and domestic uses.

The diversion quantities reported herein generally represent the actual amounts of water taken from the respective sources, and therefore include recoverable and irrecoverable losses incidental to the primary use. Substantially all diversion measurements were started by March of 1960, prior to the commencement of intensive irrigation. These measurements were continued through the irrigation season, and in some cases, the entire year to obtain a complete record.

Diverted quantities were determined primarily by measurement of open channel flow and testing of pumps. Periodic current meter measurements of the open channel were made during the diversion season to obtain channel ratings. The water surface stage was recorded either by weekly observations of a staff gage or with a continuous water stage recorder, from which quantities of flow

were calculated. Pumps were similarly rated and quantities of flow calculated from operation or power records. Existing weirs were used whenever available. These observations were supplemented by interview of water users to obtain additional data on possible abrupt changes in operation.

The measurements were classed as estimates when data were incomplete or uncertain. A notation is entered in the table if the diversions were located late in the survey resulting in an incomplete seasonal measurement. Diversions for which measurements or estimates were impossible, are described and indexed in Tables 5 and 7, respectively, but are not included in Table 6. When feasible, measurements of each diversion were made at a location above the area of first use and as close to the diversion intake as possible, but below any regulatory spill. Exceptions are noted in the table.

When the recorded data were considered sufficiently reliable, monthly diversion quantities are shown in acre-feet. However, when the recorded data were incomplete or missing, the following notations are used. "------xx-----" is used to indicate that the data were sufficient to estimate the total quantity only. A superscript "e" is used when an estimate of flow for 10 days or more in any one month was required. "----NR----" is used to indicate the period during which no recorded data were available.

Major Diversions

There are two major diversions in the unit, Clear Lake Impounding Dam and Monticello Dam. These are both diversions to storage during the runoff season for release during the irrigation season. The points of rediversion are located outside the unit on the Sacramento Valley floor.

The Clear Lake Impounding Dam, diversion location number D12N/6W-6B1, is operated by the Clear Lake Water Company. The water stored is used for

recreational purposes in the unit and for irrigation of Yolo County lands located in the area between Cache and Putah Creeks.

The history of the Clear Lake Water Company operations goes back to 1856 when the Moore Diversion Works was first used to divert water to irrigate lands in the vicinity of Woodland. Several companies including the Yolo Consolidated Water Company, the Capay Ditch Company, and the Yolo Water and Power Company have contributed to the development of the system. The latter company constructed the Clear Lake Impounding Dam in 1915 to provide storage of winter runoff in Clear Lake for release during the irrigation season.

The volume of water in Clear Lake, from 0.0 feet to 7.56 feet on the Rumsey gage located at Lakeport, is about 314,000 acre-feet. The storage and release of water from Clear Lake for irrigation purposes are regulated by the Gopcevic Decree and the Bemmerly Decree. The texts of these decrees are given in Appendix D. The Clear Lake Water Company has operated the system since 1927 during which period an average of 105,000 acre-feet per season has been diverted from Cache Creek to serve an average irrigated area of 19,000 acres per season. The maximum seasonal diversion of 189,000 acre-feet occurred in 1946 to serve 29,000 acres while the minimum seasonal diversion of 7,300 acre-feet occurred in 1931 to serve 7,000 acres.

Based on figures found in U. S. Geological Survey, Water Supply Paper No. 1715, and a height-capacity curve for the Rumsey gage at Lakeport, the approximate maximum usable amount of water stored in Clear Lake during 1959-60 (limits stipulated by the Gopcevic Decree of 1920) was 278,000 acre-feet on April 5-9, 1960.

Monticello Dam, completed in 1957, diversion location number D8N/2W-29G1 is a part of the multipurpose Solano Project of the U. S. Bureau of Reclamation. It is designed to conserve the runoff of Putah Creek to supply

Swimming and
Sunbathing at
Clear Lake

Bob's Marina
at
Clear Lake Oaks

water for extensive agricultural, municipal and industrial uses outside the unit in Solano County. Flood control is provided in the lower reaches of Putah Creek and large scale water-associated recreational areas are made available within the unit.

With a storage capacity of 1,600,000 acre-feet, the firm annual yield from Lake Berryessa is estimated to be 262,000 acre-feet, of which 216,000 acre-feet are allocated to irrigation, 31,000 acre-feet for municipal, industrial, and domestic use, and 15,000 acre-feet for downstream use along Putah Creek. In 1960, the maximum amount stored in Lake Berryessa was 1,144,200 acre-feet 1/, the total release from the reservoir was 95,545 acre-feet and the total seasonal diversion at Putah South Canal was 66,787 acre-feet.

Index to Diversions

For the convenience of the reader, an alphabetical index of diversion owners and diversion names, along with the subunit location of each diversion and references to map and page numbers on which data concerning each appear, is shown in Table 7, page 73.

Water Rights

A water right is a right, granted by law, to take possession and put to beneficial use, water occurring from a natural source of supply. The five principal types of water rights in California are riparian, overlying, appropriative, prescriptive, and pueblo. A description of these rights is presented in Appendix C, "Legal Considerations."

1/ In May 1963, Lake Berryessa reached its maximum capacity of 1,600,000 acre-feet.

The rights to the surface water of the unit are primarily based on appropriative or riparian status and have frequently been the subject of controversy and litigation. In the Cache Creek Basin, controversy first occurred in 1853 with the first reported court case in 1870. Court actions continued over the years culminating in 1920 with the case of "Gopcevic vs Yolo Water and Power Company." A copy of the decree is included in Appendix D. In 1940, court action occurred again, resulting in the "Bemmerly Decree." A copy of this decree is also included in Appendix D. Most of these court actions concerned Clear Lake dam and its construction or operation. In the Putah Creek Basin, a court suit was filed in 1922 to establish riparian rights, but it affected an area outside of the unit and is not summarized in this report.

Most of the diversions in the unit are under riparian rights or under appropriative rights established subsequent to the enactment of the Water Commission Act of 1914. As of January 1, 1963, a total of 183 currently active applications had been made in the unit under provisions of the Water Commission Act. Permits or licenses have been granted for 154 of these applications, 12 are pending before the State Water Rights Board, and 17 were incomplete. These applications are tabulated in Table C-1, page C-11.

TABLE 5

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BEAR CREEK SUBUNIT						
D [illegible] 5 [illegible]-7F1 (Sheet [illegible])	L. Bartettini	Spring tributary to Chandans Creek	Irrig.	15 acres by sprinkler	Not meas.	Riparian	--	--	1956	Pump; 10 hp gasoline engine with 0.2 mile of 2- and 3-inch pipe.	
D [illegible] 6W-6A1 (Sheet 9)	Marion Chisolm	North Fork of Cache Creek	Irrig.	7 acres by sprinkler	Not meas.	Riparian	--	--	1899	Pump; gasoline engine with 800 feet of 4-inch pipe.	Former owner: John Bonham.
D15N/5W-19A1 (Sheet 5)	York Hill Reservoir Matt J. Keegan,Jr.	Tributary to Bear Creek	Irrig. Stock. Recr.	125 acres by flooding* 100 head* Fishing*	Not meas.	Approp.	320 af	A-13237[a]	1952	Gravity and storage; earth dam 33 feet high, 700 feet long with 10-inch pipeline to 0.1 mile of earth ditch. Storage capacity: 245 af.	Received supplemental supply from D15N/5W-19F1.
D15N/5W-19F1 (Sheet 5)	York Hill Ditch Matt J. Keegan,Jr.	Doyle Canyon Creek	Irrig. Stock. Recr.	(*) (*) (*)	107*	Approp.	(*)	(*)	1952	Gravity; 0.5 mile of earth ditch.	Amount diverted supplemented D15N/5W-19A1. Water right data reported under D15N/5W-19A1.
[illegible]6N/5W-33K1 (Sheet 6)	Stephen R. and Marion S. Jones	Dry Creek	Irrig. Stock. Recr.	(*) 200 head Fishing	Not meas.	Approp.	150 af	A-16003[a]	1949	Gravity and storage; earth dam 31 feet high, 790 feet long with 400 feet of 5-inch pipe. Storage capacity: 106 af.	Previously irrigated 68 acres. Area was idle in 1960.
					BERRYESSA SUBUNIT						
D7N/3W-8R1 (Sheet 19)	Lake LaVerne J. Roy, Don, and Clint Pridmore	Tributary to Capell Creek	Irrig. Stock.	10 acres by sprinkler* 100 head	Not meas.	Approp.	65 af	A-15321[a]	1955	Gravity and storage; earth dam 47 feet high, 255 feet long with 2,000 feet of 6-inch pipe. Storage capacity: 65 af.	An additional 13 acres, normally irrigated, were dry-farmed in 1960.
D7N/3W-16H1 (Sheet 19)	Moskowite Reservoir George Moskowite	Little Valley Creek	Irrig. Stock.	123 acres by sprinkler* 1,050 head	95	Approp.	200 af 100 af 125 af	A-11930[a] A-13672[a] A-15421[a]	1946 1950 1953	Gravity and storage; earth dam 60 feet high, 790 feet long with 1.5 miles of 8-inch pipe. Storage capacity: 472 af.	Acreage reported includes 70 acres which received partial irrigation.
D7N/3W-17D1 (Sheet 19)	J. Roy, Don, and Clint Pridmore	Capell Creek	Irrig.	10 acres by sprinkler	50	Riparian	--	--	1956	Pump; 20 hp electric motor with 1,000 feet of 6-inch pipe.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BERRYESSA SUBUNIT (Continued)						
M D B & M											
D7N/4W-12J1 (Sheet 19)	Napa Valley Ranch Club	Middle Creek	Irrig. Stock. Recr.	3 acres by sprinkler* 65 head Swimming pool	Not meas.	Riparian	--	--	Prior 1959	Gravity; concrete dam 3 feet high, 8 feet long with 0.8 mile of 2- and 3-inch pipe.	An additional 2 acres, normally irrigated were fallow in 1960.
D7N/4W-25H1 (Sheet 19)	Manuel and Gladys Dutra	Tributary to Capell Creek	Irrig. Stock.	9 acres by sprinkler 80 head	Not meas.	Approp.	14 af	A-20152[a]	1953	Gravity and storage; earth dam 28 feet high, 275 feet long with a short pipeline. Storage capacity: 14 af.	
D8N/2W-29G1 (Sheet 18) (Export)*	Monticello Dam U. S. Bureau of Reclamation	Putah Creek	Irrig. Domestic Municip. Indust. Recr.	(*) (*) (*) (*) Boating, swimming, fishing, etc.	(*)	Approp.	1,000,000af 600,000af 900cfs 320,000af 116cfs	A-11199[a] A-12578[a] A-12716[a]	1957	Gravity and storage; concrete arch dam 302 feet high, 1,000 feet long. Storage capacity: 1,600,000 af.	The amount diverted was exported for use outside the unit. The maximum storage content of Lake Berryessa during 1960 was 1,144,200 af.
D8N/3W-7Q1 (Sheet 18)	Berryessa Marina Resort	Lake Berryessa	Recr.	30 campsite connections	Not meas.	Riparian	--	--	1959	Pump; 5 hp electric motor with 2.0 miles of 1.5-inch pipe.	
D8N/3W-27D1 (Sheet 18)	Harry and Marjorie Carlson	Tributary to Lake Berryessa	Stock.	300 head	Not meas.	Approp.	20 af	A-18501[a]	About 1959	Storage; earth dam 15 feet high, 160 feet long.	
D8N/4W-23M1 (Sheet 18)	Walter and Alma Priest	Tributary to Soda Creek	Stock.	300 head	Not meas.	Approp.	200 af	A-13918[a]	1950	Storage; earth dam 25 feet high, 500 feet long.	
D8N/4W-26J1 (Sheet 18)	Walter and Alma Priest	Tributary to Soda Creek	Irrig.	58 acres by sprinkler	24	Approp.	1 cfs	A-15568[a]	1948	Pump; 7.5 hp electric motor with 0.5 mile of 4- and 5-inch pipe.	
D10N/4W-9N1 (Sheet 15)	M. D. Walker	Adams Creek	Irrig.	7 acres by sprinkler*	Not meas.	Riparian	--	--	1956	Pump; 13 hp gasoline engine with 800 feet of 2-inch pipe.	Acreage reported received partial irrigation.
D10N/4W-16C1 (Sheet 15)	Alfred L. Poe	Tributary to Adams Creek	Stock.	70 head	Not meas.	(b)	--	--	1954	Storage; earth dam 20 feet high, 180 feet long. Storage capacity: 15 af.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BERRYESSA SUBUNIT (Continued)						
M D B & M											
O10N/4W-21K1 (Sheet 15)	Alfred L. Poe	Spring tributary to Lake Berryessa	Stock.*	(*)	None	(b)	--	--	1956	Storage; earth dam 20 feet high, 225 feet long with a 4- inch pipeline. Storage capacity: 10 af.	Previously watered 20 head.
D10N/5W-35B1 (Sheet 15)	George Storman	Tributary to Putah Creek	Stock.	90 head	Not meas.	(b)	--	--	About 1950	Storage; earth dam 19 feet high, 450 feet long. Storage capacity: 15 af.	
					BIG VALLEY SUBUNIT						
D11N/8W-3N1 (Sheet 12)	Cobb Mountain Water Company Arthur L. and Genevieve Anderson	Beaty Springs	Irrig. Domestic	7 acres by flooding* 19 connections*	Not meas.	Riparian	--	--	About 1857	Pump; 3 hp electric motor with 0.1 mile of 4- inch pipe.	Former owner: William Gordon. Received supplemental supply from 11N/8W-9A1.
O11N/8W-4H1 (Sheet 12)	Richard and Elna Newfield	Kelsey Creek	Irrig. Stock.	35 acres by flooding 60 head	95	Riparian	--	--	1895	Gravity; 0.2 mile of earth ditch.	Former owners: Holdenried, Jake Rush, Keig, C. Nevins.
O11N/8W-9A1 (Sheet 12)	Cobb Mountain Water Company Arthur L. and Genevieve Anderson	Nutmeg Spring	Irrig. Domestic Stock	(*) 6 connections 37 head	Not meas.*	Approp.	(*)	(c)	About 1870	Gravity; gravel and earth dam with 0.4 mile of earth ditch to 0.3 mile of 4- inch pipe.	Former owner: Staniford. Amount diverted supplemented D11N/8W-3N1. Amount of water could not be determined
D11N/8W-10H1 (Sheet 12)	Don Emerson George and Frank Moberg	Schwartz Spring	Recr. Domestic	31 acre golf course 45 connections	Not meas.	Riparian	--	--	Prior 1953	Gravity; concrete encased spring with 1,800 feet of 6- inch pipe.	
O11N/8W-10K1 (Sheet 12)	Frank M. and Betty Frates	Spring tributary to Kelsey Creek	Domestic	150 connections	Not meas.	Riparian	--	--	Prior 1874	Gravity; concrete dam 4 feet high, 10 feet long with 1,700 feet of 4- inch pipe to storage tanks.	Former owners: Youngs, Egan, Eager.
O11N/8W-11N1 (Sheet 12)	Don Emerson	Spring tributary to Kelsey Creek	Domestic Recr.	100 connections Swimming pool	Not meas.	Riparian	--	--	About 1880	Gravity; concrete box with 1,320 feet of 1.5- and 3.5- inch pipe.	Former owners: Smith, Hue Davies, Calso Water Company.
D11N/8W-11R1 (Sheet 12)	Don Emerson	Jones Creek	Recr. Power	Fishing and boating 20 kw	Not meas.	Riparian	--	--	1933	Gravity; board dam 4 feet high, 7.5 feet long with 0.8 mile of 10- inch pipe to a small reservoir.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appro-priation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BIG VALLEY SUBUNIT (Continued)						
M D B & M											
D11N/8W-12L1 (Sheet 12)	Gifford's Resort Corporation	Jones Creek	Domestic Recr.	16 connections Fish ponds	Not meae.	Approp.	--	--	About 1908	Pump; with 0.4 mile of 1.5-inch pipe.	
D12N/8W-5B1 (Sheet 10)	Godfrey L. Hildebrand, Estate of	Spring tributary to McIntire Creek	Irrig.	19 acres by sprinkler	Not meas.	Riparian	--	--	About 1949	Pump; 24 hp gasoline engine with 1,000 feet of 3- inch pipe.	
D12N/8W-5D1 (Sheet 10)	Geneva V. McIntire L. H. McIntire	McIntire Spring	Irrig. Domestic Stock.	76 acres (d) 100 head	158	Riparian	--	--	About 1855	Gravity; concrete dam 2 feet high, 14 feet long, with 1.0 mile of earth ditch.	Former owner: Stevens.
D12N/8W-5G1 (Sheet 10)	Godfrey L. Hildebrand, Estate of	Springs tributary to McIntire Creek	Irrig. Domestic Stock.	48 acres by flooding (d) 100 head	453	Riparian	--	--	About 1860	Gravity; 1.0 mile of earth ditch.	Former owner: Joshilin, Bolter.
D12N/8W-5M1 (Sheet 10)	Geneva V. McIntire L. H. McIntire	Spring tributary to McIntire Creek	Irrig. Stock.	17 acres by flooding 100 head	100	Riparian	--	--	Prior 1920	Gravity; 0.6 mile of earth ditch.	Former owner: Murdock McIntire.
D12N/8W-9K1 (Sheet 10)	Vic McGloin*	Springs tributary to Cold Creek	Irrig. Domestic Recr.	2 acres by sprinkler* (d) Fishing	Not meas.	Riparian	--	--	1957	Pump; 5.5 hp gasoline engine with 300 feet of 3- inch pipe.	Ownership changed to E. D. Treanor in 1960. An additional 1 acre, normally irrigated, was idle in 1960.
D12N/8W-22G1 (Sheet 10)	Mario and Esta Ciardella	Spring tributary to Cold Creek	Domestic Recr.	60 connections Swimming	Not meas.	Riparian	--	--	About 1933	Pump; 10 hp electric motor with 3- inch pipe to storage tanks.	Former owner: Frank Salmina.
D12N/8W-33R1 (Sheet 10)	Richard and Elna Newfield	Spring tributary to Kelsey Creek	Irrig. Domestic	7 acres by sprinkler (d)	Not meae.	Riparian	--	--	About 1895	Gravity; 0.5 mile of 3.5-inch pipe.	Former owners: Holdenried, Jake Rush, Kieg, C. Nevins.
D12N/9W-5A1 (Sheet 10)	Mrytle L. Fowler	Adobe Creek	Irrig.*	(*)	None	Riparian	--	--	1946	Gravity; concrete dam 11 feet high, 75 feet long with a 15 hp electric booster pump and 0.3 mile of 4- inch pipe.	Previously irrigated 20 acres. Area was dry-farmed in 1960.
D12N/9W-10F1 (Sheet 10)	Melvin W. and Wilda M. Wood*	Sweetwater Creek	Irrig.	38 acres by sprinkler*	Not meas.	Riparian	—	--	About 1870	Gravity; concrete and board dam 4 feet high, 25 feet long, with 0.6 mile of 8- inch pipe.	Former owners: Johnson, Elmore, Burger, Autrin. Ownership changed to W. H. Anderson. Area irrigated received supplemental supply from D12N/9W-10H1.
D12N/9W-10H1 (Sheet 10)	Melvin W. and Wilda M. Wood*	Kelsey Creek	Irrig.	(*)	Not meas.*	Riparian	--	--	1954	Pump; 20 hp gasoline engine with 400 feet of 4- inch pipe.	Ownership changed to W. H. Anderson. Amount diverted supplemented D12N/9W-10F1.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BIG VALLEY SUBUNIT (Continued)						
M D B & M											
D13N/9W-2C1 (Sheet 8)	Marion Copcevic, Estate of	Kelsey Creek	Irrig.	9 acres by flooding	Not meas.	Riparian	--	--	About 1949	Pump; tractor powered with a short 6- inch pipeline.	
D13N/9W-23B1 (Sheet 8)	Ross Peoples	Cold Creek	Irrig.	(*)	Not meas.	Riparian	—	—	1959	Pump; 5 hp electric motor with a 3- inch pipeline.	Previously irrigated 13 acres. Area was idle in 1960.
D13N/9W-25P1 (Sheet 8)	Sidney M. Dunk	Cold Creek	Irrig.	15 acres by sprinkler	Not meas.	Riparian	--	--	Prior 1906	Pump; 20 hp electric motor with a short pipeline.*	Former owners: Wilds, John Smith, Meacham. The diversion system described replaced the original gravity system in 1960.
D13N/9W-27K1 (Sheet 8)	Wayne S. Myers	Kelsey Creek	Irrig.	34 acres by sprinkler	70	Riparian	--	--	About 1951	Pump; 10 hp electric motor.	Former owner: Steve Triplot.
D13N/9W-27Q1 (Sheet 8)	Michael F. Burton	Kelsey Creek	Irrig.	21 acres by sprinkler	42	Approp.*	--	Book 2, page 271[c]	1960	Pump; 15 hp electric motor with 700 feet of 6- inch pipe.	Former water right owner was Gene E. and Dorothy Howerton.
D13N/9W-27Q2 (Sheet 8)	Juan Erquiaga Wallace G. Price Elliott and Rika V. Redd	Kelsey Creek	Irrig. Domestic Stock. Poultry	35 acres by flooding and sprinkler (d) 240 head 12,000 chickens	481	Approp.	1,000 MI	Book 1, page 33[c]	About 1865	Gravity; concrete and board dam 4 feet high, 80 feet long, with 1.5 miles of earth ditch.	Former owners: Thomas Allison, Sam Cross, Ray London, Warmouth, Joseph Nook, Shelton and Clarence Kyle, Paul Garrett, and Fred Steven.
D13N/9W-32R1 (Sheet 8)	Sterling and Delle Ananos	Adobe Creek	Irrig. Stock.	(*) 420 head	Not meas.	Riparian	--	—	Prior 1908	Gravity; concrete dam 8 feet high, 35 feet long with 100 feet of 4- inch pipe.	Former owners: Joe Kingry, F. Albers. Previously irrigated 27 acres. Area was dry-farmed in 1960.
D13N/9W-33N1 (Sheet 8)	Edith S. Allen	Trihutary to Kelsey Creek	Irrig. Domestic Stock. Recr.	6 acres by sprinkler (d) 25 head Fishing	Not meas.	Approp.	85 af	A-15697[a]	1955	Gravity and storage; earth dam 29 feet high, 300 feet long, with 240 feet of 4- inch pipe.	
D13N/9W-34H1 (Sheet 8)	Gene E. and Dorothy Howerton Elmer M. Hutchings	Kelsey Creek	Irrig. Domestic	3 acres by flooding* and sprinkler (d)	46	Approp.	—	Book 2, page 271[c]	1898	Gravity; rock dam 8 feet high, 75 feet long, with 0.9 mile of earth ditch, 700 feet of 6- inch pipe, and 1,200 feet of 4- inch pipe.*	Former owners: James H. Brown, C. O. Reynolds, George Stone, M. Barnes, Dave Cox. Ownership changed to Michael F. Burton in 1960. During 1960 the diversion dam was washed out by flood waters requiring D13N/9W-27Q1 to be installed to serve the Burton property. Elmer M. Hutchings also installed a pump downstream from the diversion dam to irrigate the acreage reported. The gravity diversion system described was abandoned in 1960. Additional 10 acres, normally irrigated, were idle in 1960.

* See remarks.
— Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BIG VALLEY SUBUNIT (Continued)						
M D B & M											
D13N/10W-14N1 (Sheet 8)	William H. and Hilda K. Graham	Donovan Creek	Irrig. Stock.	30 acres by sprinkler 50 head	Not meas.	Approp.	70 af	A-18024[a]	About 1890	Gravity and storage; earth dam 35 feet high, 225 feet long with 400 feet of 5- inch pipe.	Former owner: Gray, Blood, Redginal Athow.
D13N/10W-23K1 (Sheet 8)	William H. and Hilda K. Graham	Tributary to Highland Creek	Irrig. Stock.	25 acres by flooding* 50 head	Not meas.	Riparian	--	--	About 1949	Gravity; earth and board dam 4 feet high, 70 feet long with a 5 hp electric booster pump.	Former owner: Redginal Athow. An additional 3 acres, normally irrigated, were idle in 1960.
D13N/10W-26A1 (Sheet 8)	William H. and Hilda K. Graham	Tributary to Highland Creek	Irrig. Stock.	13 acres by subirrigation 50 head	Not meas.	(b)	--	--	About 1949	Storage; earth dam 15 feet high, 150 feet long.	Former owner: Redginal Athow.
D14N/9W-31A1 (Sheet 6)	Sheldon T. Deacon	Clear Lake	Irrig.	11 acres by flooding	Not meas.	Riparian	--	--	About 1950	Pump; 25 hp electric motor with 400 feet of 8- inch pipe.	
D14N/9W-31A2* (Sheet 6)	Sheldon T. Deacon	Clear Lake	Irrig.	5 acres by flooding	Not meas.	Riparian	--	--	About 1946	Pump; 7.5 hp electric motor with 220 feet of 6- inch pipe.	Former owner: Erwin Payne. Portable pump location varies within 0.3 mile of location indicated.
D14N/9W-31D1 (Sheet 6)	Glen Keithly	Manning Creek	Irrig.	69 acres by flooding	255	Riparian	--	--	About 1952	Pump; 15 hp electric motor with a short 8- inch pipeline.	
D14N/9W-32A1 (Sheet 6)	Francis Morrison	Clear Lake	Irrig.	65 acres by flooding*	178	Riparian	--	--	1952	Pump; 7.5 hp electric motor with 2,600 feet of 8- inch pipe.	Area irrigated received supplemental supply from a well.
D14N/9W-32C1 (Sheet 6)	United States Bureau of Indian Affairs	Clear Lake	Domestic	22 connections	Not meas.	(b)	--	--	About 1955	Pump; 5 hp electric motor with 0.6 mile of 4- inch pipe.	
D14N/9W-32D1 (Sheet 6)	Sheldon T. Deacon	Clear Lake	Irrig.	17 acres by flooding	Not meas.	Riparian	--	--	About 1946	Pump; 15 hp electric motor with 480 feet of 6- inch pipe.	Former owner: Erwin Payne.
D14N/9W-32E1 (Sheet 6)	Waldo Shaul	Rumsey Slough	Irrig.	15 acres by flooding	65	Riparian	--	--	1950	Pump; gasoline engine with 200 feet of 8- inch pipe.	
D14N/9W-32F1 (Sheet 6)	United States Bureau of Indian Affairs	Clear Lake	Irrig.	15 acres by flooding	Not meas.	(b)	--	--	1953	Pump; 7.5 hp electric motor with 0.5 mile of 4- inch pipe.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					BIG VALLEY SUBUNIT (Continued)						
M D B & M											
D14N/9W-32F2 (Sheet 6)	United States Bureau of Indian Affairs	Clear Lake	Irrig.*	(*)	None	Riparian	--	--	1953	Pump; 85 hp diesel engine with 50 feet of 12- inch pipe to 0.4 mile of earth ditch.	Previously irrigated 38 acres. Area was idle in 1960.
D14N/9W-33D1 (Sheet 6)	James L. Morrison	Clear Lake	Irrig. Stock.	34 acres by flooding 11 head	114	Riparian	--	--	1955	Pump; 15 hp electric motor.	
D14N/9W-33G1 (Sheet 6)	Francie A. Manning	McGough Slough	Irrig.	16 acres by flooding*	Not meas.	Riparian	--	--	1927	Pump; 10 hp electric motor.	An additional 61 acres, normally irrigated, were dry-farmed in 1960.
D14N/9W-33H1 (Sheet 6)	S. J. Blower	McGough Slough	Irrig.	33 acres by flooding	27	Riparian	--	--	1947	Pump; 10 hp electric motor with 0.4 mile of 8- inch pipe.	
D14N/9W-33K1 (Sheet 6)	John Medina	McGough Slough	Irrig.	26 acres by flooding*	71	Riparian	--	--	Prior 1959	Pump; 7.5 hp electric motor.	Former owner: Boardman. Area irrigated received supplemental supply from a well.
D14N/9W-34A1 (Sheet 6)	Glen and R. G. Keithly	Clear Lake	Irrig.	137 acres by flooding*	572	Riparian	--	--	About 1949	Pump; 5 hp electric motor.	Area irrigated received supplemental supply from wells. An additional 2 acres, normally irrigated, were dry-farmed in 1960.
D14N/9W-34D1 (Sheet 6)	Glen and R. G. Keithly	Clear Lake	Irrig.	49 acres by flooding	326	Riparian	--	--	About 1947	Pump; 10 hp electric motor with a 12- inch pipeline.	
D14N/9W-35D1 (Sheet 6)	Marion Gopcevic, Estate of	Clear Lake	Irrig.	449 acres by flooding*	627	Riparian	--	--	About 1950	Pump; 20 hp electric motor with 1.0 mile of 18-, 15-, and 10- inch pipe.	Area irrigated received supplemental supply from a well. An additional 6 acres, normally irrigated, were idle in 1960.
D14N/10W-25J1 (Sheet 6)	Charlotte Pinkham, Estate of	Clear Lake	Irrig.	20 acres by flooding	23	Riparian	--	--	Prior 1944	Pump; 10 hp electric motor.	Former owner: Cuppinger.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appro-priation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					INDIAN VALLEY SUBUNIT						
M D B & M											
D14N/6W-4F1 (Sheet 7)	Indian Valley Association*	North Fork Cache Creek	Irrig.*	(*)	None	Riparian	--	--	About 1900	Pump; 40 hp diesel engine with 0.1 mile of 4-, 5-, and 6-inch pipe.*	Former owners: Frank Kowalski, William F. and F. W. Stevans, Charles Carr. Ownership changed to Jack J. Tilley in 1960. Previously irrigated 33 acres. Area was idle in 1960. The system described can also be used at D15N/6W-16N1.
D14N/7W-8Q1 (Sheet 7)	Kenneth, Mary, and John D. Kennedy	Long Valley Creek	Irrig.*	(*)	None	Riparian	--	--	Prior 1900	Pump; 15 hp electric motor with a short 3- and 4- inch pipeline.	Previously irrigated 23 acres. Area was irrigated from a well in 1960.
D14N/7W-14J1 (Sheet 7)	E. Horton	Long Valley Creek	Irrig.	19 acres by sprinkler	48	Riparian	--	--	1955	Pump; 15 hp electric motor with a short 6- inch pipeline.	
D14N/7W-16G1 (Sheet 7)	Jay Creager	Long Valley Creek	Irrig.*	(*)	None	Riparian	--	--	Prior 1959	Pump; 40 hp gasoline engine with a short 4- inch pipeline.	Previously irrigated 14 acres. Area was dry-farmed in 1960.
D14N/7W-24N1 (Sheet 7)	Ernest J. Ford	Spring tributary to Long Valley Creek	Irrig. Domestic Stock.	21 acres by sprinkler (d) 50 head	Not meas.	(b)	--	--	1956	Gravity and storage; earth dam 18 feet high, 530 feet long, with 4,700 feet of 6- inch pipe.	
D15N/6W-9C1 (Sheet 5)	Cliff Garrison	Stanton Creek	Irrig.	8 acres by flooding*	Not meas.	(b)	--	--	Prior 1960	Gravity; earth ditch	Acreage reported received partial irrigation.
D15N/6W-16N1 (Sheet 5)	Indian Valley Association*	Stanton Creek	Irrig.*	(*)	None	Riparian	--	--	About 1900	Pump; 40 hp dieeel engine with 0.1 mile of 4-, 5-, and 6-inch pipe.*	Former owners: Frank Kowalski, William F. and F. W. Stevans, Charles Carr. Ownership changed to Jack J. Tilley in 1960. Previously irrigated 31 acres. Area was idle in 1960. The system described can also be used at D14N/6W-4F1.
D15N/6W-28D1 (Sheet 5)	Indian Valley* Association	North Fork Cache Creek	Irrig.*	(*)	None	Riparian	--	--	About 1900	Gravity; gravel dam 6 feet high, 200 feet long, with 0.7 mile of earth ditch.	Former owners: Frank Kowalski, William F. and F. W. Stevans, Charles Carr. Ownership changed to Jack J. Tilley in 1960. Previously irrigated 77 acres jointly with D15N/6W-28E1. Area was idle in 1960.
D15N/6W-28E1 (Sheet 5)	Indian Valley Association*	North Fork Cache Creek	Irrig.*	(*)	None	Riparian	--	--	About 1900	Pump; 16 hp gasoline engine with a short 10- inch pipeline.	Former owners: Frank Kowalski, William F. and F. W. Stevans, Charles Carr. Ownership changed to Jack J. Tilley in 1960. Previously irrigated 77 acres jointly with D15N/6W-28D1. Area was idle in 1960.

* See remarks.

-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					LOWER LAKE SUBUNIT						
M D B & M											
D12N/6W-6B1 (Sheet 11) (Export)[a]	Clear Lake Water Company	Clear Lake	Irrig.* Recr.	(*) Boating, fishing, swimming, etc.	(*)	Approp.	(e)	(e)	1864	Gravity and storage; concrete dam 32 feet high, 260 feet long, with 28.8 miles of natural channel to the point of export at the eastern boundary of the hydrographic unit. Storage capacity: 314,000af	Former owners: Yolo County Consolidated, Yolo Water and Power Company. Maximum storage available for export to the Sacramento Valley Floor Hydrographic Unit was 278,000 af on April 5-9, 1960, as recorded by a 6.73 foot reading on the "Rumsey Gage" at Lakeport.
D12N/6W-18M1 (Sheet 11)	Tom M. Cantwell	Tributary to Copsey Creek	Stock.	30 head	Not meas.	(b)	--	--	Prior 1959	Storage; earth dam 30 feet high, 225 feet long.	
D12N/7W-1C1 (Sheet 10)	George Schmidt	Cache Creek	Irrig.	50 acres by sprinkler*	71	Riparian	--	--	1951	Pump; 15 hp electric motor with a short 6- inch pipeline.	Former owners: Harold Schmidt, Carlyle Biehm. Acreage reported includes 14 acres that received partial irrigation.
D12N/7W-1D1 (Sheet 10)	Clarence L. Bonham Abe Brookins George Schmidt	Cache Creek	Irrig.	66 acres by flooding and sprinkler*	178	Riparian	--	--	1924	Pump; 20 hp electric motor with 0.6 mile of 12- inch pipe.	Former owner: W. B. Reynolds. Area irrigated received supplemental supply from a well.
D12N/7W-1D2 (Sheet 10)	George Sullivan	Herndon Creek	Irrig.	5 acres by flooding*	Not meas.	Riparian	--	--	1953	Pump; gasoline engine with 1,900 feet of 4- inch pipe.	An additional 9 acres, normally irrigated, were dry-farmed in 1960.
D12N/7W-2B1 (Sheet 10)	Charles O. Kimrey	Cache Creek	Irrig.	15 acres by sprinkler	Not meas.	Riparian	--	--	1960	Pump; 1.5 hp electric motor with a short pipeline.	
D12N/7W-8A1 (Sheet 10)	Frank L. Kiesecker	Tributary to Seigler Canyon Creek	Stock.	17 head	Not meas.	(b)	--	--	1949	Storage; earth dam 15 feet high, 600 feet long.	Former owner: Milt Kulgeman.
D12N/7W-15 1 (Sheet 10)	David L. Moskowite	Tributary to Copsey Creek	Irrig.	10 acres by sprinkler	Not meas.	Approp.	400 af	A-16572[a]	1954	Pump and storage; earth dam 25 feet high, 230 feet long and a gasoline engine with 500 feet of 4- inch pipe.	
D12N/7W-16P1 (Sheet 10)	Julia, Lily, Mary, and Theresa Perini	Perini Creek	Irrig. Domestic Stock.	16 acres by flooding (d) 12 head	Not meas.	Riparian	--	--	About 1900	Gravity; 0.6 mile of earth ditch.	
D12N/7W-22Q1 (Sheet 10)	Arthur Ladocque	Tributary to Copsey Creek	Irrig.	15 acres by furrow	Not meas.	Approp.	20 af	A-17847[a]	1919	Gravity; regulatory reservoir 50 feet wide, 100 feet long with earth furrows.	Former owners: W. A. Vernon, Mary Murphy.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					LOWER LAKE SUBUNIT (Continued)						
M D B & M											
D12N/7W-23D1 (Sheet 10)	Josephine Lovisone	Copsey Creek	Irrig.	29 acres by sprinkler	Not meas.	Riparian	--	--	1958	Pump; 7.5 hp electric motor with a short 4- inch pipeline.	
D12N/7W-24H1 (Sheet 10)	O. H. Hodges	Spring tributary to Copsey Creek	Irrig. Recr.	4 acres by sprinkler Swimming	Not meas.	Riparian	--	--	1956	Gravity; earth dam 8 feet high, 140 feet long with 0.1 mile of 2- inch pipe.	
D12N/7W-27B1 (Sheet 10)	Frank M. Cooley	Copsey Creek	Irrig.	(*)	Not meas.	Riparian	--	--	1959	Pump; 3 hp gasoline engine with a short 3- inch pipeline.	Previously irrigated 3 acres. Area was idle in 1960.
D12N/7W-27C1 (Sheet 10)	Frank M. Cooley	Spring tributary to Copsey Creek	Irrig. Stock.	14 acres by sprinkler* 17 head	Not meas.	Riparian	--	--	1958	Gravity; earth dam 20 feet high, 200 feet long, with 150 feet of 2- inch pipe.	An additional 13 acres are normally irrigated of which 3 acres were idle and 10 acres were dry-farmed in 1960.
D12N/7W-35C1 (Sheet 10)	Henry Hofacker	Tributary to Copsey Creek	Stock. Indust.	408 head Fish culture	Not meas.	(b)	--	--	1955	Storage; earth dam 25 feet high, 300 feet long. Storage capacity: 39 af.	
D12N/8W-4B1 (Sheet 10)	Kim Canavarro	Tributary to Thurston Lake	Irrig. Stock.	4 acres by sprinkler* 85 head	(*)	Riparian	--	--	Prior 1940	Gravity; concrete weir 2 feet wide, 4 feet long with 0.1 mile of earth ditch and 400 feet of 8- inch pipe to a regulatory reservoir.	Former owner: Joe Turgeon. Area irrigated received supplemental supply from a well. Amount diverted, which is included under D12N/8W-4B2, normally supplements D13N/8W-28R1.
D12N/8W-4B2 (Sheet 10)	Paul Shively	Tributary to Thurston Lake	Irrig. Stock.	(*) 40 head	355[a]	Riparian	--	--	Prior 1940	Gravity; concrete weir 2 feet wide, 4 feet long with 300 feet of earth ditch.	Previously irrigated 35 acres. Area was idle in 1960. Amount diverted includes all water from D12N/8W-4B1.
D12N/8W-13Q1 (Sheet 10)	Laurence G. and Hazel Warner	Springs tributary to Seigler Canyon Creek	Irrig. Domestic Stock.	32 acres by sprinkler* (d) 35 head	Not meas.	Riparian	--	--	Prior 1953	Pump; 15 hp electric motor with a short 3- inch pipeline.	Former owners: Charles Meis, Millet. Area irrigated received supplemental supply from a well.
D13N/7W-6Q1 (Sheet 9)	Bradley Mining Company	Clear Lake	Domestic* Mining*	(*) (*)	None	(b)	--	--	1927	Pump; 50 hp electric motor with 0.2 mile of 6- inch pipe to storage tanks.	Previously supplied 12 domestic connections and used for mill processing.
D13N/7W-17N1 (Sheet 9)	Clear Lake Park Water Company	Clear Lake	Municip.	(*)	(*)	Riparian	--	--	1956	Pump; 3 hp electric motor with 950 feet of 6- inch pipe to storage facilities.	Amount diverted and extent of use reported under D13N/8W-12E1.
D13N/7W-18L1 (Sheet 9)	Clear Lake Park Water Company	Clear Lake	Municip.	(*)	(*)	Riparian	--	--	Prior 1959	Pump; 3 hp electric motor with 1.3 miles of 4- inch pipe to a storage tank.	Amount diverted and extent of use reported under D13N/8W-12E1.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					LOWER LAKE SUBUNIT (Continued)						
M D B & M											
D13N/7W-20H1 (Sheet 9)	Manakee Water Company	Clear Lake	Municip.	83 connections*	20	Riparian	--	--	1927	Pumps; 2 - 15 hp electric motors with 0.3 mile of 4- inch pipe.	Amount diverted served Manakee Subdivision.
D13N/7W-20J1 (Sheet 9)	E. A. Robey and Company, Inc.	Clear Lake	Municip. Recr.	7 connections 18 cottages and 75 campsites	Not meas.	Riparian	--	--	Prior 1928	Pumps; 3 hp electric motor with a short pipeline and a 1.5 hp pump used as standby.	Former owners: Charles L. Austin, LaBree, Miller.
D13N/7W-28F1 (Sheet 9)	Highlands Water Company	Clear Lake	Municip.	(*)	143*	Riparian	--	--	1959	Pump; 50 hp electric motor with 0.6 mile of 8- inch pipe to a storage tank.	Amount diverted served 780 connections in the community of Clear Lake Highlands jointly with D13N/7W-28G1.
D13N/7W-28G1 (Sheet 9)	Highlands Water Company	Clear Lake	Municip.	(*)	164*	(b)	--	--	1925	Pumps; 15 hp and 20 hp electric motors with 0.3 mile of 6- inch pipe to a storage tank.	Amount diverted served 780 connections in the community of Clear Lake Highlands jointly with D13N/7W-28F1.
D13N/7W-30J1 (Sheet 9)	Crescent Bay Improvement Company	Clear Lake	Domestic	28 connections	Not meas.	Riparian	--	--	1922	Pump; 5 hp electric motor with 325 feet of 2- inch pipe to a storage tank.	Former owner: McFarland.
D13N/7W-34R1 (Sheet 9)	Charles M., William, and Mora Anderson	Cache Creek	Irrig.	39 acres by sprinkler	34	Riparian	--	--	1951	Pump; 15 hp electric motor with 900 feet of 4- inch pipe.	
D13N/7W-35J1 (Sheet 9)	C. E. Thomas	Tributary to Cache Creek	Induet.	Fish culture	Not meas.	(b)	--	--	Prior 1959	Gravity and storage; earth dam 25 feet high, 315 feet long with 250 feet of 4- inch pipe.	
D13N/8W-4C1 (Sheet 8)	Buckingham Park Water System Alfred E. Augenstein	Clear Lake	Domestic	101 connections	19	Riparian	--	--	Prior 1900	Pump; 10 hp electric motor with 2.0 miles of 4- inch pipe.	Former owners: Buckingham, Baldwin, Howe, Stonson, Doleger.
D13N/8W-10M1 (Sheet 8)	Pipe Fitters and Plumbers Union	Clear Lake	Irrig.	22 acres by sprinkler	Not meas.	Riparian	--	--	About 1955	Pump; diesel engine with 800 feet of 4- inch pipe.	Former owner: Triple A Machine Shop.
D13N/8W-10P1 (Sheet 8)	Pipe Fitters and Plumbers Union	Clear Lake	Irrig.	16 acres by sprinkler	Not meas.	Riparian	--	--	1955	Pump; diesel engine with 1,000 feet of 4- inch pipe.	Former owner: Triple A Machine Shop.
D13N/8W-12E1 (Sheet 8)	Clear Lake Park Water Company	Clear Lake	Municip.	(*)	80*	Riparian	—	--	Prior 1959	Pump; 10 hp electric motor with 1,000 feet of 3- inch pipe.	Amount diverted served 680 connections in the community of Clear Lake Park jointly with D13N/7W-17N1 and D13N/7W-18L1.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					LOWER LAKE SUBUNIT (Continued)						
M D B & M											
D13N/8W-15D1 (Sheet 8)	Konocti Bay Resort Bernard I. Abel	Clear Lake	Irrig. Recr.	6 acres by sprinkler Campgrounds and trailer park	Not meas.	Riparian	--	--	1959	Pump; 1 hp electric motor with 1,200 feet of 2- inch pipe.	
D13N/8W-16R1 (Sheet 8)	Max J. Galatoire	Clear Lake	Irrig.	7 acres by sprinkler	Not meas.	Riparian	--	--	1950	Pump; 3 hp electric motor with 0.1 mile of 3- inch pipe.	
D13N/8W-22D1 (Sheet 8)	S. F. Stockum	Clear Lake	Irrig.	12 acres by sprinkler	Not meas.	Riparian	--	--	Prior 1920	Pump; 7.5 electric motor with 1,000 feet of 4- inch pipe.	Former owners: Frazier, Captain Hill, Frank Sutton.
D13N/8W-28R1 (Sheet 8)	Kim Canavarro	Tributary to Thurston Lake	Irrig.*	(*)	None	Riparian	--	--	1957	Gravity and storage; earth dam 8 feet high, 600 feet long with a short pipeline.	Previously irrigated 71 acres. Area was dry-farmed in 1960. Normally receives supplemental supply from D12N/8W-4R1 and a well.
D14N/7W-19J1 (Sheet 7)	T. Apline	Tributary to Clear Lake	Irrig. Stock.	8 acres by sprinkler 200 head	Not meas.	(b)	--	--	About 1953	Pump and storage; earth dam 15 feet high, 1,500 feet long and a 7.5 hp electric motor with 0.2 mile of 4- inch pipe.	
D14N/7W-31H1 (Sheet 7)	Chelton Hill	Clear Lake	Irrig.*	(*)	None	Riparian	--	--	Prior 1947	Pump; 20 hp electric motor with a short earth ditch.	Previously irrigated 45 acres. Area was idle in 1960.
D14N/7W-32F1 (Sheet 7)	Mrs. Worthen Bradley	Clear Lake	Irrig.	55 acres by sprinkler	111	Riparian	--	--	Prior 1952	Pump; 40 hp electric motor with a short 8- inch pipeline.	Former owner: Arthur Fluth.
D14N/8W-28C1 (Sheet 6)	B. C. Jones	Clear Lake	Irrig.	47 acres by flooding*	Not meas.	Riparian	--	--	Prior 1950	Pump; 40 hp electric motor with 750 feet of 12- inch pipe.	Former owner: George Hotaling. Acreage reported includes 22 acres that received partial irrigation.
					MIDDLETOWN SUBUNIT						
D10N/5W-6R1 (Sheet 15)	Woodland Farms, Incorporated	Tributary to Putah Creek	Stock.	200 head	Not meas.	(b)	--	--	Prior 1945	Storage; earth dam 4 feet high, 500 feet long.	Former owner: Detert.
D10N/5W-16E1 (Sheet 15)	A. M. Pedotti	Tributary to Butts Creek	Stock.	40 head	Not meas.	(b)	--	--	1952	Storage; earth dam 18 feet high, 750 feet long.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					MIDDLETOWN SUBUNIT (Continued)						
M D B & M											
D10N/6W-1J1 (Sheet 14)	Woodland Farms, Incorporated	Tributary to Bucksnort Creek	Stock.	200 head	Not meas.	(b)	--	--	Prior 1945	Storage; earth dam 6 feet high, 550 feet long.	Former owner: Detert.
D10N/6W-8C1 (Sheet 14)	Earle P. Hanson	Tributary to Bucksnort Creek	Irrig.*	(a)	None	Approp.*	148 af	A-13771[a]	1950	Pump and storage; earth dam 18 feet high, 400 feet long and a 5 hp electric motor with a short 3- inch pipeline. Storage capacity: 30 af.	Former owner: May Strickler. Previously irrigated 13 acres. Area was idle in 1960. Water right in name of Harry I. and Nancy A. Kelly.
D10N/6W-9J1 (Sheet 14)	Detert Lake Woodland Farms, Incorporated	Bucksnort Creek	Irrig. Stock.	684 acres by flooding[a] 150 head	1,698	Approp.* Approp.	1,100 af 1,700 af 12.5 cfs	A-3089[a] A-19890[a]	1922	Gravity and storage; earth dam 40 feet high, 1,300 feet long with 6,000 feet of 12- and 14- inch pipe. Storage capacity: 1,700 af.	Former owner: Detert. Acreage reported was irrigated jointly with D11N/6W-34K1. Water right filed under Investment Operating Corporation.
D10N/6W-31C1 (Sheet 14)	N. B. Livermore and Sons	Spring tributary to St. Helena Creek	Irrig. Domestic Recr.	11 acres by sprinkler[a] (d) Swimming	Not meas.	Riparian	--	--	Prior 1870	Gravity; concrete box with 1,500 feet of 8- and 10- inch pipe.	Former owner: Dr. Blake. Acreage reported was irrigated jointly with D10N/6W-31F1.
D10N/6W-31F1 (Sheet 14)	N. B. Livermore and Sons	Spring tributary to St. Helena Creek	Irrig. Domestic	(a) (d)	Not meas.	Riparian	--	--	Prior 1880	Gravity; series of concrete ponds with 0.1 mile of concrete-lined ditch and 600 feet of 3-inch pipe.	Amount diverted irrigated jointly with D10N/6W-31C1.
D10N/7W-3K1 (Sheet 14)	Otto Sempell	St. Helena Creek	Irrig.*	(a)	None	Riparian	--	--	1888	Pump; 7.5 hp electric motor with a short 4- inch pipeline.	Former owner: Arthur Lundquist. Previously irrigated 8 acres. Area was idle in 1960.
D10N/7W-4D1 (Sheet 14)	Hazen A. Dennis	Tributary to Dry Creek	Irrig. Stock.	6 acres by sprinkler 100 head	Not meas.	(b)	--	--	About 1950	Gravity and storage; earth dam 10 feet high, 100 feet long with a short 4- inch pipeline.	Former owner: Victor Ravoli.
D10N/7W-10B1 (Sheet 14)	Harold Beasley	St. Helena Creek	Irrig.	50 acres by sprinkler[a]	Not meas.	Riparian	--	--	1963	Pump; 40 hp electric motor with a short 8- inch pipeline.	An additional 6 acres, normally irrigated were idle in 196..
D10N/7W-10G1 (Sheet 14)	James Agapoff	St. Helena Creek	Irrig.	3 acres by sprinkler	Not meas.	Riparian	--	--	1955	Pump; 15 hp electric motor with a short 4- inch pipeline.	
D10N/7W-10H1 (Sheet 14)	Joe M. Ogando	St. Helena Creek	Irrig.	12 acres by sprinkler[a]	Not meas.	Riparian	--	--	1938	Pump; 7.5 hp electric motor with a short 4- inch pipeline.	Acreage reported received partial irrigation.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					MIDDLETOWN SUBUNIT (Continued)						
T. 10 N. & R. 7 W.											
D10N/7W-10J1 (Sheet 14)	C. R. and Eleanor C. Vines	St. Helena Creek	Irrig.	19 acres by sprinkler*	7	Riparian	--	--	About 1930	Pump; 7.5 hp electric motor with a short 4- inch pipeline.	Former owner: Victor Homstedt. Acreage reported includes 13 acres that received partial irrigation.
D10N/7W-10P1 (Sheet 14)	Frank Gross	Tributary to St. Helena Creek	Irrig. Recr.	11 acres by sprinkler* Swimming	Not meas.	(b)	--	--	1958	Gravity and storage; earth dam 33 feet high, 110 feet long with 0.3 mile of 1- inch pipe. Storage capacity: 11 af.	Acreage reported received partial irrigation.
D10N/7W-10R1 (Sheet 14)	C. R. and Eleanor C. Vines	St. Helena Creek	Irrig.	7 acres by sprinkler*	Not meas.	Riparian	--	--	About 1930	Pump; 9 hp gasoline engine with a short 3- inch pipeline.	Former owner: Victor Homstedt. Acreage reported received partial irrigation.
D11N/6W-19P1 (Sheet 12)	Barbara Trimble	Putah Creek	Irrig. Stock.	76 acres by sprinkler* 150 head	106	Riparian	--	--	1952	Pump; 50 hp electric motor with a short 8- inch pipeline.	Acreage reported includes 11 acres that received partial irrigation.
D11N/6W-20E1 (Sheet 12)	Frank Hartman	Putah Creek	Irrig.	46 acres by flooding	Not meas.	Riparian	--	--	1948	Pump; 10 hp electric motor with a short 10- inch pipeline.	
D11N/6W-20N1 (Sheet 12)	Eric W. and Ruth V. Johnson	Putah Creek	Irrig.	51 acres by flooding*	181	Riparian	--	--	1913	Pump; 15 hp electric motor with a short 10- inch pipeline.	Former owner: Quayle. Area irrigated received supplemental supply from wells.
D11N/6W-20P1 (Sheet 12)	Frank Hartman	Putah Creek	Irrig.	(*)	Not meas.	Riparian	--	--	1894	Pump; 40 hp gasoline engine with a short 8- inch pipeline.	Former owners: Sam Yee, William Nolan, George Jewell. Previously irrigated 45 acres. Area was idle in 1960.
D11N/6W-28D1 (Sheet 12)	Mary A. Bowcher	Putah Creek	Irrig. Stock.	9 acres by sprinkler 100 head	34	Riparian	--	--	1950	Pump; 15 hp electric motor with 1,040 feet of 4- and 6- inch pipe.	
D11N/6W-28G1 (Sheet 12)	Mary A. Bowcher	Putah Creek	Irrig.	17 acres by sprinkler	44	Riparian	--	--	1948	Pump; 15 hp electric motor with a short 6- inch pipeline.	
D11N/6W-28H1 (Sheet 12)	Mary A. Bowcher	Putah Creek	Irrig.	70 acres by flooding	160*	Approp.	0.95 cfs	A-3797[a]	1924	Pump; 15 hp electric motor with 3,000 feet of 14- inch pipe.	Former owners: L. J. Gamble, J. V. Eccleston. Amount diverted includes all water from D11N/6W-28H2.
D11N/6W-28H2 (Sheet 12)	Mary A. Bowcher	Putah Creek	Irrig. Stock.	7 acres by sprinkler 100 head	(*)	Approp.	(*)	(*)	1924	Pump; 7.5 hp electric motor with a short 6- inch pipeline.	Former owners: L. J. Gamble, J. V. Eccleston. Amount diverted included under D11N/6W-28H1. Water right data reported under D11N/6W-28H1.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					MIDDLETOWN SUBUNIT (Continued)						
M D B & M											
D11N/6W-29N1 (Sheet 12)	George P. Belcher	Crazy Creek	Irrig.	45 acres by flooding*	Not meas.	Approp.	0.67 cfs	A-15784[a]	1954	Pump; 7.5 hp electric motor with 2,600 feet of 8- inch pipe.	Area irrigated received supplemental supply from a well.
D11N/6W-34K1 (Sheet 12)	McCreary Lake Woodland Farms, Incorporated	Bucksnort Creek	Irrig. Stock.	(*) 500 head	1,382[a]	Approp.*	1,353 af 2,098 af	A-15706[a] A-19890[a]	About 1928	Storage and pump; earth dam 8 feet high, 2,000 feet long and two pumps with 15 hp and 20 hp electric motors, respectively. Storage capacity: 1,353 af.	Former owner: Detert. Amount diverted irrigated jointly with D10N/6W-9J1. Water right filed under Investment Operating Corporation.
D11N/7W-26P1 (Sheet 12)	L. J. Skaggs	Putah Creek	Irrig.	61 acres by flooding	303	(b)	--	--	About 1870	Pump; 5 hp electric motor with 4,000 feet of 24- inch pipe and 1.0 mile of concrete-lined ditch.	Former owners: Donovan, Bank of America.
D11N/7W-26P2 (Sheet 12)	Ralph K. Davies	Putah Creek	Irrig. Stock.	68 acres by sprinkler 100 head	203	Riparian	--	--	1951	Pump; 25 hp electric motor with a short 6- inch pipeline.	Former owner: F. J. Hagerty.
D11N/7W-29N1 (Sheet 12)	Ralph K. Davies	Putah Creek	Irrig. Stock.	159 acres by flooding 300 head	723	Approp.	.0008 cfs	A-16114[a]	1859	Gravity; concrete and wood dam 4 feet high, 50 feet long with an earth ditch.	Former owner: McKinley Bros.
D11N/7W-32C1 (Sheet 12)	Ralph K. Davies	Bear Canyon Creek	Recr.	Swimming and fishing*	Not meas.	Approp.	250 af	A-17331[a]	1954	Storage; earth dam 35 feet high, 90 feet long. Storage capacity: 12 af	Received supplemental supply from D11N/7W-32F1.
D11N/7W-32F1 (Sheet 12)	Ralph K. Davies	Bear Canyon Creek	Recr.	(*)	Not meas.*	Approp.	(*)	(*)	1954	Storage; earth dam 45 feet high, 120 feet long. Storage capacity: 10 af.	Amount diverted supplemented D11N/7W-32C1. Water right data reported under D11N/7W-32C1.
D11N/7W-34Q1 (Sheet 12)	Ralph K. Davies	Dry Creek	Irrig.	120 acres by sprinkler*	46	Riparian	--	--	1952	Pump; 20 hp electric motor with a short 6- inch pipeline.	Area irrigated received supplemental supply from a well.
D11N/8W-14G1 (Sheet 12)	James J. Keeline	Callayomi Springs	Domestic Recr.	170 connections Swimming pool	Not meas.	(b)	--	--	About 1924	Gravity; concrete and rock dam 3 feet high, 10 feet long with several pipelines.	Former owner: Carl Strickler.
D11N/8W-14F1 (Sheet 12)	Don and Madeline Strickler	Dogwood Spring	Domestic Stock. Recr.	170 connections 15 head Swimming pool	Not meas.	Riparian	--	--	Prior 1900	Gravity; 1,800 feet of 1.5-, 2- and 2.5- inch pipeline.	Former owner: David Strickler.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					MIDDLETOWN SUBUNIT (Continued)						
M D B & M											
D11N/8W-23B1 (Sheet 12)	Robert A. and Selina F. Badger	Spring tributary to Putah Creek*	Irrig. Domestic	5 acres by sprinkler (d)	Not meas.	Approp.	(*)	Vol. 37, page 262[c]	Prior 1890	Gravity; rock dams with 1,200 feet of 3- and 2.5- inch pipe and 2,000 feet of 1.5- inch pipe.	Former owner: C. H. Howard. This reach of Putah Creek is also known as English Creek. Amount of water right could not be determined.
D11N/8W-26H1 (Sheet 12)	A. R. Maede	Anderson Creek	Domestic Recr.	90 Connections Swimming and fishing	Not meas.	(b)	--	--	About 1870	Gravity; rock dam 1 foot high, 8 feet long, with 0.3 mile of 1.5- and 2- inch pipe.	Former owners: Rose, Barbara, and Charlett Anderson, E. W. Schwartz.
D11N/8W-36H1 (Sheet 12)	A. R. Maede	Hanson Creek	Domestic	40 connections	Not meas.	(b)	--	--	About 1870	Gravity; 3,000 feet of 2- inch pipe.	Former owners: Thorne, C. J. Ford, Davies.
D12N/6W-19R1 (Sheet 11)	Mayrene Gray	Tributary to Asbill Creek	Domestic Recr.	(d) Swimming and fishing	Not meas.	Approp.	14.4 af	A-13915[a]	1949	Storage; earth dam 38 feet high, 140 feet long. Storage capacity: 14 af.	Former owner: R. M. Gray.
D12N/8W-25R1 (Sheet 10)	Ed Stahl	Bonanza Spring	Domestic Recr.	32 connections Swimming pool	Not meas.	Riparian	--	--	About 1942	Pump; 5 hp electric motor with 1.0 mile of 1.5- inch pipe.	
D12N/8W-34R1 (Sheet 10)	Adams Springs Company	Spring tributary to Big Canyon Creek	Domestic Recr.	100 connections Swimming pool	91	(b)	--	--	About 1879	Pump; with 5,300 feet of 6- inch pipe.	Former owner: Price.
					POPE VALLEY SUBUNIT						
D8N/5W-11G1 (Sheet 18)	Human Relations Research Foundation	Maxwell Creek	Irrig. Stock.	57 acres by sprinkler 30 head	0?	Approp.	183 af	A-13711[a]	1953	Gravity and storage; earth dam 40 feet high, 200 feet long with 0.2 mile of 6- inch pipe. Storage capacity: 183 af.	
D8N/5W-12E1 (Sheet 18)	Manuel Abreu	Maxwell Creek	Stock. Irrig.	70 head 2 acres	Not meas.	Approp.	14.5 af	A-16960[a]	1957	Storage; earth dam 24 feet high, 225 feet long. Storage capacity: 14 af.	
D9N/4W-31L1 (Sheet 17)	Y. M. Hardin	Tributary to Maxwell Creek	Irrig.	12 acres by sprinkler	Not meas.	Riparian	--	--	1953	Pump; 10 hp electric motor with a short 4- inch pipeline.	
D9N/5W-3Q1 (Sheet 16)	Dick Week	Tributary to Pope Creek	Irrig. Indust. Domestic	(*) Fish culture (d)	Not meas.	Approp.	.0062 cfs	A-16268[a]	1949	Gravity and storage; earth dam 20 feet high, 150 feet long, with a short 3- inch pipeline. Storage capacity: 10 af.	Previously irrigated 7 acres. Area was idle in 1960.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					POPE VALLEY SUBUNIT (Continued)						
M D B & M											
D9N/5W-5N1 (Sheet 16)	Joe Stern	Pope Creek	Irrig.	(a)	Not meas.[a]	Riparian	--	--	1955	Pump; 40 hp electric motor with 850 feet of 6- inch pipe.	Former owners: Stegge Land and Cattle Company. Amount diverted supplemented D9N/5W-8E1.
D9N/5W-7C1 (Sheet 16)	Joe Stern	Tributary to Pope Creek	Stock.	60 head	Not meas.	Approp.	30 af	A-17734[a]	1957	Storage; earth dam 6 feet high, 180 feet long. Storage capacity: 10 af.	
D9N/5W-8E1 (Sheet 16)	Joe Stern	Tributary to Pope Creek	Irrig. Stock.	48 acres by sprinkler[a] 60 head	58	Approp.	75 af 140 af	A-15196[a] A-16488[a]	1953	Pump and storage; earth dam 30 feet high, 930 feet long and a 20 hp electric motor with 0.1 mile of 6-inch pipe. Storage capacity: 100 af.	Former owners: George M. Wiloth, Stegge Built Homes, Incorporated. Area irrigated received supplemental supply from D9N/5W-5N1.
D9N/5W-9K1 (Sheet 16)	C. C. Glidden	Tributary to Pope Creek	Irrig. Stock. Recr.	16 acres by sprinkler[a] 190 head Fishing	Not meas.	Approp.*	65 af	A-13597[a]	1950	Pump and storage; earth dam 18 feet high, 550 feet long and a 10 hp pump with 0.1 mile of 4- inch pipe.[a] Storage capacity: 48 af.	Former owners: J. C. Thiele, Marvin P. Jones. Received supplemental supply from, and pump also can be used at D9N/5W-9K2 and 9Q1. Water right in name of California Leisure Land, Inc.
D9N/5W-9K2 (Sheet 16)	C. C. Glidden	Tributary to Pope Creek	Irrig. Recr.	(a) Fishing	Not meas.	Approp.*	40 af	A-15934[a]	1954	Pump and storage; earth dam 18 feet high, 325 feet long and a 10 hp pump with a short 4- inch pipeline.[a] Storage capacity: 35 af.	Amount diverted supplemented D9N/5W-9K1. Pump also can be used at D9N/5W-9K1 and -9Q1. Water right in name of California Leisure Land, Inc.
D9N/5W-9[illegible] (Sheet 16)	C. C. Glidden	Pope Creek	Irrig.[a]	(a)	None	Approp.*	.05 af .88 cfs	A-13597[a] A-15934[a]	1950	Pump; 10 hp electric motor with a short 4- inch pipeline.[a]	Former owners: J. C. Thiele, Marvin P. Jones. Previously supplemented D9N/5W-9K1. Pump can also be used at D9N/5W-9K1 and 9K2. Water right in name of California Leisure Land, Inc.
D9N/5W-10E1 (Sheet 16)	Dick Week	Tributary to Pope Creek	Irrig. Indust. Stock.	(a) Fish culture 200 head	410	Approp.	180 af 150 af 180 af 150 af	A-11236[a] A-14024[a] A-15164[a] A-16267[a]	About 1950	Pump and storage; earth dam 45 feet high, 900 feet long and any of 3 portable pumps (15 hp, 30 hp, and 100 hp) with 1.0 mile of 6- inch pipe. Storage capacity: 450 af.	Normally receives supplemental supply from D9N/5W-10N1 and D9N/5W-10Q1 to irrigate 82 acres. Area was idle in 1960.
D9N/5W-10H1 (Sheet 16)	Dick Week	Tributary to Pope Creek	Irrig. Indust.	(a) Fish culture	Not meas.	Approp.	41 af	A-12851[a]	1948	Gravity and storage; earth dam 24 feet high, 220 feet long with a short pipeline. Storage capacity: 41 af.	Previously irrigated 5 acres. Area was idle in 1960.
D9N/5W-10N1 (Sheet 16)	Dick Week	Tributary to Pope Creek	Irrig. Indust.	(a) Fish culture	Not meas.[a]	(b)	--	--	1956	Pump and storage; earth dam 10 feet high, 800 feet long and any of 3 portable pumps (15 hp, 30 hp, and 100 hp) with 1.0 mile of 6- inch pipe. Storage capacity: 50 af.	Amount diverted normally supplements D9N/5W-10E1 for irrigation. Previously received supplemental supply from D9N/5W-10Q1.

[a] See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					POPE VALLEY SUBUNIT (Continued)						
M D B & M											
D9N/5W-10Q1 (Sheet 16)	Dick Week	Pope Creek	Irrig.* Indust.*	(*) (*)	None	Riparian	--	--	1947	Pump; any of 3 portable pumps (15 hp, 30 hp, and 100 hp) with 1.0 mile of 6- inch pipe.	Previously supplemented D9N/5W-10E1 and D9N/5W-10N1.
D9N/5W-11J1 (Sheet 16)	Carl Benson	Pope Creek	Indust.	Gravel washing	Not meas.	(b)	--	--	1946	Pump; 7.5 hp electric motor with 250 feet of 4- inch pipe.	
D9N/5W-11L1 (Sheet 16)	James Connor	Tributary to Pope Creek	Irrig. Stock.	26 acres by sprinkler* 65 head	16*	(b)	--	--	1947	Pump and storage; earth dam 20 feet high, 500 feet long and a 15 hp motor with a short pipeline.	Acreage reported was irrigated jointly with D9N/5W-11Q1.
D9N/5W-11Q1 (Sheet 16)	James Connor	Pope Creek	Irrig.	(*)	5*	Riparian	--	--	1947	Pump; 15 hp electric motor with a short 4- inch pipeline.	Amount diverted irrigated jointly with D9N/5W-11L1.
D9N/5W-16N1 (Sheet 16)	S. P. Bradshaw	Tributary to Burton Creek	Stock.	100 head	Not meas.	(b)	--	--	About 1955	Storage; earth dam 14 feet high, 30 feet long. Storage capacity: 10 af.	
D9N/5W-18C1 (Sheet 16)	Norman K. Blanchard	Tributary to Pope Creek	Irrig. Stock.	10 acres by flooding 60 head	Not meas.*	(b)	--	--	1959	Gravity and storage; dam 23 feet high, 600 feet long with pipe to small reservoir and booster pump. Storage capacity: 40 af.	Amount diverted irrigated jointly with D9N/6W-13J1.
D9N/5W-19A1 (Sheet 16)	Gordon R. and B. H. Kirkpatrick	Burton Creek	Stock. Poultry Domestic Recr.	(*)	Not meas.*	Approp.	.30 cfs 20 af	A-14391[a] A-17476[a]	1951	Gravity; rubble dam 1.5 feet high, 8 feet long with 0.3 mile of 8- inch pipe.	Amount diverted supplemented D9N/5W-20D1.
D9N/5W-20A1 (Sheet 16)	S. P. Bradshaw	Tributary to Burton Creek	Stock. Recr.	100 head Fishing and boating	Not meas.	(b)	--	--	1953	Storage; earth dam 15 feet high, 770 feet long. Storage capacity: 25 af.	
D9N/5W-20D1 (Sheet 16)	Gordon R. and B. H. Kirkpatrick	Tributary to Burton Creek	Stock. Poultry Domestic Recr.	225 head* 25,000 birds* (d)* Swimming, fishing, and boating*	Not meas.	Approp.	16 af	A-14392[a]	1952	Gravity and storage; earth dam 23 feet high, 190 feet long. Storage capacity: 17 af.	Received supplemental supply from D9N/5W-19A1.
D9N/5W-21P1 (Sheet 16)	H. L. Page	Tributary to Burton Creek	Stock. Recr.	19 head Swimming and fishing	Not meas.	Approp.	42 af	A-15281[a]	1954	Storage; earth dam 26 feet high, 180 feet long. Storage capacity: 30 af.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					POPE VALLEY SUBUNIT (Continued)						
M D B & M											
D9N/5W-22K1 (Sheet 16)	Lawrence and Thelma E. Groteguth	Tributary to Burton Creek	Stock. Irrig.	150 head (*)	Not meas.	Approp.	33 af	A-17555[a]	1957	Gravity and storage; earth dam 21 feet high, 150 feet long with 0.2 mile of portable pipeline.	Previously irrigated 2 acres. Area was idle in 1960.
D9N/5W-23Q1 (Sheet 16)	Emil Usibelli	Tributary to Burton Creek	Irrig. Stock.	94 acres by sprinkler 200 head	Not meas.	(b)	--	--	1958	Pump and storage; earth dam 15 feet high, 250 feet long and a 15 hp pump with 0.1 mile of 8- inch pipe. Storage capacity: 20 af.	
D9N/5W-27K1 (Sheet 16)	Emil Usibelli	Tributary to Burton Creek	Irrig.	21 acres by sprinkler	Not meas.	(b)	--	--	1959	Pump; 15 hp electric motor with 0.1 mile of 3- inch pipe.	
D9N/5W-36A1 (Sheet 16)	Jack L. and Babette J. Keppel	Hardin Creek	Irrig.	(*)	Not meas.	Approp.*	.10 cfs 15 af	A-13053[a]	1945	Pump; 3 hp electric motor with 400 feet of 4- inch pipe.	Former owners: Walter H. Young, A. P. Martignoni. Previously irrigated 23 acres. Area was idle in 1960. Water right in name of Lee & Mary E. Eakle.
D9N/6W-1A1 (Sheet 16)	W. D. Hammond	Tributary to James Creek	Irrig. Stock. Recr.	(*) 210 head Swimming, fishing, and duck pond	Not meas.*	Approp.	.31 cfs 30 af	A-15323[a]	1951	Storage; earth dam 24 feet high, 1,300 feet long. Storage capacity: 50 af.	Amount diverted normally supplemented D10N/6W-36Q1.
D9N/6W-1C1 (Sheet 16)	Aurthur Wandtke	Tributary to Pope Creek	Stock.	100 head	Not meas.	(b)	--	--	1951	Storage; earth dam 9 feet high, 225 feet long. Storage capacity: 10 af.	Former owner: Harold Jian.
D9N/6W-1P1 (Sheet 16)	George B. and Ruth V. Heibel	Aetna Creek	Irrig. Stock. Recr.	22 acres by sprinkler* 150 head Fishing	19	Approp.	25 af	A-13801[a]	1951	Pump and storage; earth dam 24 feet high, 500 feet long and a 5 hp electric motor with a short 4- inch pipeline. Storage capacity: 30 af.	Acreage reported received partial irrigation.
D9N/6W-11B1 (Sheet 16)	Sarah Joan, Katherine M., and John A. Burne	Tributary to Swartz Creek	Irrig. Stock. Recr.	(*) 40 head Swimming and fishing	Not meas.	Approp.	48 af	A-15258[a]	1954	Pump and storage; earth dam 35 feet high, 400 feet long and a 10 hp electric motor with 200 feet of 4- inch pipe. Storage capacity: 60 af.	Previously irrigated 6 acres. Area was idle in 1960.
D9N/6W-12G1 (Sheet 16)	Duvall Lake Donald N. Duvall	Tributary to Pope Creek	Irrig. Indust. Stock. Recr.	23 acres by sprinkler Turkey processing 200 head Swimming and fishing	156	Approp.*	150 af	A-9574[a]	1939	Pump and storage; earth dam 27 feet high, 950 feet long and a 10 hp electric motor with .1 mile of 6- inch pipe. Storage capacity: 150 af.	Water right in name of Franklin F. Offner.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
				POPE VALLEY SUBUNIT (Continued)							
M D B & M											
D9N/6W-13E1 (Sheet 16)	George B. and Ruth V. Heibel	Spring tributary to Pope Creek	Domestic Stock. Recr.	200 persons 125 head Swimming	Not meas.	Riparian	--	--	1836	Gravity; 2.1 miles of 2- and 2.5- inch pipe.	Former owners: Hartson, Liddell, Len Owens. Received supplemental supply from D9N/6W-13F1, D9N/6W-13L1, and D9N/6W-14A1.
D9N/6W-13F1 (Sheet 16)	George H. and Ruth V. Heibel	Spring tributary to Pope Creek	Domestic Stock. Recr.	(*)	Not meas.*	Riparian	--	--	1836	Gravity; 0.1 mile of 2- inch pipe.	Former owners: Hartson, Liddell, Len Owens. Amount diverted supplemented D9N/6W-13E1.
D9N/6W-13J1 (Sheet 16)	Norman K. Blanchard	Tributary to Pope Creek	Irrig. Stock. Recr.	29 acres by sprinkler* 60 head Swimming and fishing	15	(b)	--	--	About 1955	Gravity and storage; concrete dam with 0.2 mile of 6- inch pipe and wood flume, 0.3 mile of natural channel, and a 25 af reservoir with 0.5 mile of 6- inch pipe.	Acreage reported was irrigated jointly with D9N/5W-18C1.
D9N/6W-13L1 (Sheet 16)	George B. and Ruth V. Heibel	Spring tributary to Pope Creek	Domestic Stock. Recr.	(*)	Not meas.*	Riparian	--	--	1836	Gravity; 0.4 mile of 2- inch pipe.	Former owners: Hartson, Liddell, Len Owens. Amount diverted supplemented D9N/6W-13E1.
D9N/6W-14A1 (Sheet 16)	George B. and Ruth V. Heibel	Spring tributary to Swartz Creek	Domestic Stock. Recr.	(*)	Not meas.*	Riparian	--	--	1836	Gravity; 0.7 mile of 6- inch pipe.	Former owners: Hartson, Liddell, Len Owens. Amount diverted supplemented D9N/6W-13E1.
D10N/6W-27N1 (Sheet 14)	George R. Anderson	Spring tributary to James Creek	Mining	General mill use	Not meas.	Riparian	--	--	1927	Gravity; direct diversion.	
D10N/6W-27Q1 (Sheet 14)	George R. Anderson	Spring tributary to James Creek	Stock.* Mining*	(*) (*)	None	Riparian	--	--	1949	Gravity; 0.2 mile of 1- inch pipe.	Previously watered 100 head and supplied a cinnabar mine.
D10N/6W-28R1 (Sheet 14)	N. B. Livermore and Sons	Spring tributary to James Creek	Domestic Mining	(d) Concentrating cinnabar ore.	Not meas.	Riparian	--	--	About 1850	Gravity; 0.2 mile of 4- inch pipe.	Normally receives supplemental supply from D10N/6W-28R2.
D10N/6W-28R2 (Sheet 14)	N. B. Livermore and Sons	Tributary to James Creek	Mining*	(*)	None	Riparian	--	--	About 1850	Gravity; earth dam 1 foot high, 4 feet long with 100 feet of 6- inch pipe.	Previously supplemented D10N/6W-28R1.
D10N/6W-36Q1 (Sheet 14)	W. D. Hammond	Potassium Creek	Irrig. Stock. Recr.	5 acres by sprinkler* 210 head Swimming, fishing, and hunting	Not meas.	Approp.	42 af	A-15323[a]	1947	Pump and storage; earth dam 16 feet high, 1,000 feet long and a 5 hp electric motor with 200 feet of 6- inch pipe. Storage capacity: 50 af.	Acreage reported received partial irrigation. Area normally receives supplemental supply from D9N/6W-1A1.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					SCOTT VALLEY SUBUNIT						
M D B & M											
D13N/11W-1P1 (Sheet 8)	Margaret F. Dorst	Tributary to South Fork Scotts Creek	Irrig. Stock.	4 acres by flooding and sprinkler 60 head	Not meas.	(b)	—	—	About 1936	Gravity and storage; earth dam 8 feet high, 315 feet long with a short earth ditch. Storage capacity: 10 af.	Former owners: William Peter, Bland Banta.
D13N/11W-1R1 (Sheet 8)	Margaret P. Dorst	Tributary to South Fork Scotts Creek	Irrig. Stock.	47 acres by flooding 200 head	19*	(b)	—	—	1952	Gravity and storage; earth dam 23 feet high, 340 feet long with a short earth ditch. Storage capacity: 30 af.	Amount diverted supplemented D13N/11W-12H1
D13N/11W-12N1 (Sheet 8)	Peters Reservoir Margaret F. Dorst	Tributary to South Fork Scotts Creek	Irrig. Stock.	24 acres by flooding* 200 head	43	(b)	—	—	1940	Gravity and storage; earth dam 32 feet high, 465 feet long with a short earth ditch. Storage capacity: 112 af.	Former owners: William Peter, Bland Banta. Area irrigated received supplemental supply from D13N/11W-1R1
D14N/10W-2P1 (Sheet 6)	James A. Leithead	Scotts Creek	Irrig.	13 acres by sprinkler	Not meas.	Riparian	--	--	About 1909	Pump; 7.5 hp electric motor with a short pipeline.	Former owners: Echus, Martin Zenders, H. A. Gordon.
D14N/10W-3B1 (Sheet 6)	Nidden Lake G. J. Russell	Tributary to Scott Creek	Irrig.	18 acres by sprinkler	Not meas.	Riparian	—	--	1957	Pump; 10 hp electric motor with 600 feet of 6- inch pipe.	
D14N/10W-11D1 (Sheet 6)	Kenneth Rickabaugh	Springs tributary to Scotts Creek	Irrig.	33 acres by sprinkler*	16	Riparian	—	—	1952	Pump; 7.5 hp electric motor with 0.2 mile of 4- inch pipe.	Area irrigated received supplemental supply from a well.
D14N/10W-11F1 (Sheet 6)	Gene Burger	Scotts Creek	Irrig.	32 acres by sprinkler*	Not meas.	Riparian	--	—	Prior 1940	Pump; 7.5 hp electric motor with a short 4- inch pipeline.	Former owner: Ingrahm. Acreage reported was irrigated jointly with D14N/10W-11G1
D14N/10W-11G1 (Sheet 6)	Burger Lake Gene Burger	Tributary to Scotts Creek	Irrig. Stock.	(*) 60 head	25*	(b)	—	—	About 1946	Pump and storage; earth dam 5 feet high, 750 feet long and a 7.5 hp electric motor with 0.1 mile of 4- inch pipe.	Amount diverted irrigated jointly with D14N/10W-11F1.
D14N/10W-15J1 (Sheet 6)	G. A. Curtis	Scotts Creek	Irrig.	16 acres by sprinkler	Not meas.	Riparian	—	—	About 1932	Pump; 7.5 hp electric motor with a short 5- inch pipeline.	
D14N/10W-16F1 (Sheet 6)	Art Ora	Tributary to Scotts Creek	Stock. Recr.	150 head Fishing and boating	Not meas.	(b)	—	—	1957	Storage; earth dam 33 feet high, 190 feet long. Storage capacity: 49 af.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					SCOTT VALLEY SUBUNIT (Continued)						
M D B & M											
D14N/10W-22H1 (Sheet 6)	Lakeport Municipal Waterworks	Scotts Creek	Municip. Irrig.	1,101 connections 69 acres by flooding*	574*	Riparian	--	--	1899	Pump; 25 hp and 40 hp electric motors with 1.2 miles of 12-inch pipe.	Amount diverted serves area jointly with D14N/10W-22H2. Acreage reported was irrigated with sewage effluent. Acreage reported includes 8 acres located in Big Valley Subunit.
D14N/10W-22H2 (Sheet 6)	Lakeport Municipal Waterworks	Scotts Creek	Municip. Irrig.	(*) (*)	(*)	Riparian	--	--	1899	Pump; 20 hp and 50 hp electric motors.	Amount diverted and extent of use reported under D14N/10W-22H1.
D15N/10W-8Q1 (Sheet 4)	Leland R. and Myrtle Tyrer	Tributary to Scotts Creek	Irrig.	7 acres by sprinkler	Not meas.	Riparian	--	--	About 1870	Pump; 12 hp gasoline engine with 450 feet of 5- inch pipe.	Former owners: Menderhall, Phillips, Jim Mann, O. B. Tyrer.
D15N/10W-8R1 (Sheet 4)	George A. Sandage	Scotts Creek	Irrig.	13 acres by sprinkler	Not meas.	Riparian	--	--	1944	Pump; 12 hp gasoline engine with 800 feet 3- and 4-inch pipe.	
D15N/10W-9H1 (Sheet 4)	Mark and Hilda Mendenhall	Scotts Creek	Irrig.	14 acres by sprinkler*	10	Riparian	--	--	1948	Pump; 10 hp electric motor with a short 4- inch pipeline.	Area irrigated received supplemental supply from a well. Area of use is located in Upper Lake Subunit.
D15N/10W-17B1 (Sheet 4)	Elwood and Estelle Pickrell	Scotts Creek	Irrig.	8 acres by flooding and sprinkler	Not meas.	Riparian	--	--	1946	Pump; 85 hp and 7 hp gasoline engine with 340 feet of 6-inch pipe.	
D15N/10W-17C1 (Sheet 4)	Clyde M. Cash	Scotts Creek	Irrig.	14 acres by sprinkler	Not meas.	Riparian	--	--	1890	Pump; 5 hp electric motor with a short 6- inch pipeline.	Former owners: Tindall, Beatrice Heckendorf, Doser, Wade A. Misner.
D15N/10W-20D1 (Sheet 4)	Herbert A. and Ruth D. Robertson	Scotts Creek	Irrig.*	(*)	None	Riparian	--	--	Prior 1937	Pump; 12 hp gasoline engine with 400 feet of 6- inch pipe.	Former owners: Judge Hurley, Oscar Ducher, Robert Young, Antonio Lopez. Previously irrigated 8 acres. Area was idle in 1960.
D15N/10W-20L1 (Sheet 4)	Raymond V. and Ruth J. Miller	Scotts Creek	Irrig.	17 acres by sprinkler	Not meas.	Riparian	--	--	Prior 1951	Pump; 12 hp gasoline engine with a short 6- inch pipeline.	Former owner: J. B. Scott.
D15N/10W-20Q1 (Sheet 4)	James H. Wattenburger	Scotts Creek	Irrig.	14 acres by sprinkler	Not meas.	Riparian	--	--	About 1945	Pump; 7.5 hp electric motor with a short 3- and 6-inch pipeline.	

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					SCOTT VALLEY SUBUNIT (Continued)						
M D B & M											
D15N/10W-29B1 (Sheet 4)	P. H. D. Ranch	Scotts Creek	Irrig.	9 acres by sprinkler	Not meas.	Approp.*	.39 cfs	A-11499	About 1946	Pump; 40 hp gasoline engine with a short 4- inch pipeline.	Former owner: Stewart. Water right filed in name of C. A. Cantrell.
D15N/10W-33B1 (Sheet 4)	M. A. Cantrell	Scotts Creek	Irrig.*	(*)	None	Riparian	--	--	Prior 1940	Pump; gasoline engine with 750 feet of 4- inch pipe.	Former owner: Edward Dorr. Previously irrigated 35 acres. Area was dry-farmed in 1960.
					UPPER LAKE SUBUNIT						
D14N/8W-6E1 (Sheet 6)	Lucerne Water Company	Clear Lake	Municip.	350 connections	111	(b)	--	--	1926	Pump; 15 hp and 25 hp electric motors with a 4- inch pipeline.	Former owner: Lucerne Light and Water Company.
D15N/9W-5N1 (Sheet 4)	Paul Alexander	Clover Creek	Irrig.	51 acres by flooding and sprinkler	25	Riparian	--	--	1952	Pump; 20 hp electric motor with a short 8- inch pipeline.	Former owners: Murdock, Elliot.
D15N/9W-5Q1 (Sheet 4)	Paul Alexander	Clover Creek	Irrig.* Stock.*	(*) (*)	None	Riparian	--	--	1959	Pump; tractor engine with 250 feet of 6- inch pipe to earth ditch.	Previously irrigated 19 acres and watered 50 head. Area was dry-farmed in 1960.
D15N/9W-6C1 (Sheet 4)	John Strickfaden	Middle Creek	Irrig. Stock.	8 acres by flooding 25 head	Not meas.	Riparian	--	--	1939	Pump; 5 hp electric motor with 150 feet of 8- inch pipe.	
D15N/9W-6D1 (Sheet 4)	Jim Brown Lincoln Dennison Wilferd Mitchell Robert Snow Rodney Snow John Strickfaden Elery Tony Sam Tony	Middle Creek	Irrig.*	(*)	None	Riparian	--	--	About 1949	Pump; 10 hp electric motor.	Previously irrigated 15 acres. Area was idle in 1960.
D15N/9W-6J1 (Sheet 4)	Parusina Brothers	Clover Creek	Irrig.*	(*)	None	Riparian	--	--	1952	Pump; 15 hp electric motor with a short 6- inch pipeline.	Former owner: Roland Zastrow. Previously irrigated 40 acres. Area was irrigated from a well in 1960.
D15N/9W-7M1 (Sheet 4)	Donald M. Griner	Clover Creek	Irrig.	8 acres by flooding*	Not meas.	Riparian	--	--	Prior 1944	Gravity: 300 feet of 10- inch pipe.	Area irrigated received supplemental supply from a well.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
				UPPER LAKE SUBUNIT (Continued)							
M D B & M											
D15N/9W-7P1 (Sheet 4)	Donald M. Griner	Tributary to Clear Lake	Irrig. Stock.	112 acres by flooding and sprinkler 100 head	163	Riparian	--	--	1954	Pump; 20 hp electric motor with a short 14- inch pipeline.	
D15N/9W-17D1 (Sheet 4)	G. A. Wetmore	Tributary to Clear Lake	Irrig.	21 acres by flooding*	Not meas.	Riparian	--	--	Prior 1949	Pump; 7.5 hp electric motor with 750 feet of 4- inch pipe and earth ditch.	Former owners: Pyzer, Bucknowl. An additional 10 acres, normally irrigated, were dry-farmed in 1960.
D15N/9W-17E1 (Sheet 4)	Herbert Peterson	Tributary to Clear Lake	Irrig.	10 acres by sprinkler	Not meas.	Riparian	--	--	1951	Pump; 7.5 hp electric motor with 300 feet of 4- inch pipe.	Former owners: Ed Saler, Charlie Saler, Edmons Ranch.
D15N/9W-17E2 (Sheet 4)	Rex Pierson	Tributary to Clear Lake	Irrig.	21 acres by sprinkler*	13	Riparian	--	--	1948	Pump; 15 hp electric motor with a short 4- inch pipeline.	Former owner: Weymeyer. Acreage reported includes 10 acres that received partial irrigation.
D15N/9W-17M1 (Sheet 4)	J. F. Guntly	Tributary to Clear Lake	Irrig.	32 acres by flooding	73	Riparian	--	--	Prior 1959	Pump; 10 hp electric motor with an earth ditch.	Former owners: Anderson, Buck.
D15N/9W-17M2 (Sheet 4)	Clay R. Anderson	Tributary to Clear Lake	Irrig.*	(*)	None	Riparian	--	--	1950	Pump; 25 hp electric motor with a short 4- inch pipeline.	Previously irrigated 42 acres. Area was dry-farmed in 1960.
D15N/9W-17N1 (Sheet 4)	John W. and Anna R. Respini	Tributary to Clear Lake	Irrig.	16 acres by sprinkler	10	Riparian	--	--	1952	Pump; 7.5 hp electric motor with a 3- inch pipeline.	
D15N/9W-17N2 (Sheet 4)	LeRoy Johnson	Tributary to Clear Lake	Irrig.*	(*)	None	Riparian	--	--	About 1925	Pump; --	Former owner: Swartz. Previously irrigated 11 acres. Areas were dry-farmed in 1960.
D15N/9W-18E1 (Sheet 4)	Audrey Weger	Tributary to Clear Lake	Irrig.	62 acres by flooding	Not meas.	Riparian	--	--	1955	Pump; 25 hp electric motor with a short 16- inch pipeline and earth ditch.	Former owner: Edna Jones.
D15N/9W-18G1 (Sheet 4)	Lulu C. Jones	Tributary to Clear Lake	Irrig. Stock.	166 acres by flooding 600 head	Not meas.	Riparian	--	--	1948	Pump; 30 hp electric motor with a short 16- inch pipeline.	
D15N/9W-18H1 (Sheet 4)	S. A. Billingsley Roland Hanson	Tributary to Clear Lake	Irrig. Stock.	71 acres by flooding* 250 head	Not meas.	Riparian	--	--	1950	Pump; 15 hp electric motor with a short 12- inch pipeline.	Former owner: Estate of Evelyn Rider. Acreage reported includes 16 acres that received partial irrigation.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					UPPER LAKE SUBUNIT (Continued)						
M D B & M											
D15N/9W-18L1 (Sheet 4)	Audrey Weger	Tributary to Clear Lake	Irrig. Stock.	48 acres by sprinkler 250 head	Not meas.	Riparian	--	--	1957	Pump; 15 hp electric motor with 300 feet of 4- inch pipe.	Former owner: Jones family.
D15N/9W-18Q1 (Sheet 4)	B. F. Modglin	Clear Lake	Irrig.*	(*)	None	Riparian	--	--	1925	Gravity; 0.2 mile of earth ditch with a booster pump.	Previously irrigated 41 acres. Area was idle in 1960.
D15N/9W-19B1 (Sheet 4)	Hobson and Conn	Tributary to Clear Lake	Irrig.*	(*)	None	Riparian	--	--	About 1925	Gravity; 30- inch gated pipe through levee with 0.5 mile of earth ditch and a booster pump.	Former owners: B. H. Polk, Nickolas. Previously irrigated 256 acres. Area was dry-farmed in 1960.
D15N/9W-20C1 (Sheet 4)	Mark Mendenhall	Tributary to Clear Lake	Irrig.	24 acres by flooding	42	Riparian	--	--	1926	Pump; 7.5 hp electric motor with an earth ditch.	Former owner: E. P. Saler.
D15N/9W-20C2 (Sheet 4)	B. F. Modglin	Tributary to Clear Lake	Irrig. Stock.	28 acres by sprinkler 100 head	69	Riparian	--	--	Prior 1959	Pump; 30 hp electric motor with 200 feet of 4- inch pipe.	
D15N/9W-20F1 (Sheet 4)	R. J. Giovarini	Tributary to Clear Lake	Irrig.	5 acres by flooding	Not meas.	Riparian	--	--	1929	Pump; 5 hp electric motor with 150 feet of 6- inch pipe.	Former owner: George Sagaser.
D15N/9W-20F2 (Sheet 4)	Edward J. Tolman	Tributary to Clear Lake	Irrig.	22 acres by flooding	81	Riparian	--	--	1955	Pump; 7.5 hp electric motor with 200 feet of 8- inch pipe to an earth ditch.	Former owner: Baldwin.
D15N/9W-20L1 (Sheet 4)	Earl Proett	Tributary to Clear Lake	Irrig. Stock.	34 acres by flooding 60 head	109	Riparian	--	--	1925	Pump; 10 hp electric motor with 0.4 mile of earth ditch to a 10- inch pipeline.	Former owner: Edmounds.
D15N/9W-20L2 (Sheet 4)	Edward J. Tolman	Tributary to Clear Lake	Irrig. Stock.	25 acres by flooding* 170 head	Not meas.	Riparian	--	--	1953	Pump; 15 hp electric motor with 0.1 mile of 12- inch pipe.	Former owner: Paul Elmore. An additional 2 acres, normally irrigated, were idle in 1960.
D15N/9W-20M1 (Sheet 4)	D. F. Modglin	Reclamation District No. 2070 Drain	Irrig.	44 acres by sprinkler	118	(b)	--	--	1925	Pump; 30 hp electric motor with a short 4- inch pipeline.	
D15N/9W-20P1 (Sheet 4)	Modglin and Knudson Construction Company	Tributary to Clear Lake	Irrig.	63 acres by flooding and sprinkler	82	Riparian	--	--	1945	Pump; 15 hp electric motor with 0.4 mile of 10- inch pipe to earth ditch.	Former owners: Dr. Barr, Hunter.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					UPPER LAKE SUBUNIT (Continued)						
M D B & M											
D15N/9W-24N1 (Sheet 4)	H. Vincent Keeling	Gilbert Creek	Recr.	Fishing	Not meas.	(b)	--	--	About 1950	Storage; earth dam 10 feet high and 300 feet long. Storage capacity: 25 af.	
D15N/9W-28F1 (Sheet 4)	Modglin and Knudson Construction Company	Clear Lake	Irrig. Stock.	93 acres by sprinkler 150 head	199	Riparian	--	--	1948	Pump; 30 hp electric motor with 950 feet of 6- inch pipe.	Former owners: Dr. Barr, Hunter.
D15N/9W-28H1 (Sheet 4)	Jim and Margaret Morrison	Clear Lake	Irrig.	17 acres by sprinkler	115	Riparian	--	--	1956	Pump; 7.5 hp electric motor with 1,300 feet of 3- inch pipe.	
D15N/9W-29B1 (Sheet 4)	Modglin and Knudson Construction Company	Clear Lake	Irrig. Stock.	9 acres by sprinkler 75 head	Not meas.	Riparian	--	--	1925	Gravity; 12- inch siphon to 0.4 mile of natural slough with a booster pump.	Former owner: Reclamation District No. 2070.
D15N/9W-29B2 (Sheet 4)	B. F. Modglin	Tributary to Clear Lake	Irrig.*	(*)	None	Riparian	--	--	1959	Pump; 60 hp gasoline engine with a short 4- inch pipeline.	Former owners: Dr. Barr, Hunter. Previously irrigated 8 acres. Area was idle in 1960.
D15N/9W-29C1 (Sheet 4)	Modglin and Knudson Construction Company	Clear Lake	Irrig.	103 acres by sprinkler*	85	Riparian	--	--	1959	Pump; 60 hp gasoline engine with 300 feet of 4- inch pipe.	An additional 53 acres, normally irrigated, were dry-farmed in 1960.
D15N/9W-29C2 (Sheet 4)	Reclamation District No. 2070	Clear Lake	Irrig.* Stock.*	(*) (*)	None	(b)	--	--	1925	Gravity; 36- inch gated pipe to earth ditch.	Previously irrigated 37 acres and watered 75 head. Area was idle in 1960.
D15N/9W-29J1 (Sheet 4)	Modglin and Knudson Construction Company	Clear Lake	Irrig.	40 acres by sprinkler	102	Riparian	--	--	1945	Pump; 30 hp electric motor with 0.1 mile of 6- inch pipe.	Former owners: Dr. Barr, Hunter.
D15N/9W-31H1 (Sheet 4)	Allen W. Roberts	Clear Lake	Irrig. Stock.	63 acres by flooding and sprinkler 100 head	100	Riparian	--	--	1947	Pump; 7.5 hp electric motor with 0.6 mile of 6- inch pipe.	Former owner: Roberts family.
D15N/9W-32D1 (Sheet 4)	Duane W. Bradley	Clear Lake	Irrig.	35 acres by sprinkler	48	Riparian	--	--	1957	Pump; 25 hp electric motor with 250 feet of 6- inch pipe.	Former owner: Quail.

* See remarks.
— Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appro-priation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					UPPER LAKE SUBUNIT (Continued)						
M D B & M											
D15N/9W-32D2 (Sheet 4)	Albert J. and Pauline P. Amell	Clear Lake	Irrig.	14 acres by sprinkler	61	Riparian	--	--	Prior 1959	Pump; 20 hp electric motor with 500 feet of 6- inch pipe.	Former owner: John Deadrich.
D15N/9W-36E1 (Sheet 4)	Jane K. Barnes	Clear Lake	Irrig.	35 acres by sprinkler	Not meas.	Riparian	--	--	About 1880	Pump; 10 hp electric motor with 0.2 mile of 5- inch pipe.	Former owner: M. B. Elliot.
D15N/10W-1R1 (Sheet 4)	E. M. Seely	Middle Creek	Irrig.	34 acres by flooding	Not meas.	Riparian	--	--	1940	Pump; 5 hp electric motor with 0.7 mile of 12- and 14- inch pipe.	Former owner: Louis Dorn.
D15N/10W-4F1 (Sheet 4)	Guntly Brothers	Doyle Creek	Irrig.* Stock.*	(*) (*)	None	(b)	--	--	1950	Pump and storage; earth dam 10 feet high, 600 feet long and a pump downstream with 200 feet of pipeline. Storage capacity: 15 af.	Former owners: William Skelenger, Nerston S. Buck. Previously irrigated 9 acres and watered 100 head. Area was dry-farmed in 1960.
D15N/10W-11Q1* (Sheet 4)	Tule Lake Ranch	Tributary to Scotts Creek	Irrig.	111 acres by sprinkler	Not meas.	Riparian	--	--	1957	Pump; 30 hp gasoline engine on 6- inch drainage line.	Portable pump location varies within 1,000 feet of location indicated.
D15N/10W-12P1 (Sheet 4)	Louis F. Rose	Scotts Creek	Irrig.	16 acres by sprinkler	15	Riparian	--	--	Prior 1944	Pump; 10 hp electric motor with a 4- inch pipeline.	Former owner: Wesley Worden.
D15N/10W-12Q1 (Sheet 4)	Louis F. Rose	Scotts Creek	Irrig.	11 acres by sprinkler	14	Riparian	--	--	1956	Pump; 5 hp electric motor with a 3- inch pipeline.	Former owner: Wesley Worden.
D15N/10W-12R1* (Sheet 4)	Lake County Cannery	Middle Creek	Irrig.*	(*)	None	Riparian	--	--	1896	Pump; 32 hp gasoline engine with a 6- inch pipeline.*	Former owner: Clear Lake Cannery, Inc. Portable pump location varies between 3 points and can also be used at D15N/10W-13B2. Previously irrigated 47 acres jointly with D15N/10W-13B2. Area was idle in 1960.
D15N/10W-13B1 (Sheet 4)	Don Madia	Scotts Creek	Irrig. Stock.	10 acres by flooding 35 head	42	Riparian	--	--	1885	Pump; 15 hp electric motor with a 12- inch pipeline.	Former owners: Pluth, Harvey Marston.

* See remarks.
-- Information not available.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion location and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1960			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
M D B & M					UPPER LAKE SUBUNIT (Continued)						
D15N/10W-13B2 (Sheet 4)	Lake County Cannery	Scotts Creek	Irrig.*	(*)	None	Riparian	--	--	1896	Pump; 32 hp gasoline engine with a 6- inch pipelins.*	Former owner: Clear Lake Cannery, Inc. Previously irrigated jointly with D15N/10W-12R1. This pump can also be used at D15N/10W-12R1.
D16N/9W-31M1 (Sheet 2)	Waverly J. and Kate Slattery	Middle Creek	Irrig.	21 acres by sprinkler	34	Approp.	.21 cfs	A-6904[a]	1956	Pump; 15 hp electric motor with a 6- inch pipeline.	Former owner: George Haycock.
D16N/9W-32P1 (Sheet 2)	Virgil Wade	Poge Creek	Irrig.	43 acres*	Not meas.	Riparian	--	--	1947	Gravity; earth dam 12 feet high, 400 feet long.	Acreage reported is sub-irrigated by ssepage from reservoir.
D16N/10W-21Q1 (Sheet 2)	Paul Gambonini	Springs tributary to Scotts Creek	Stock.	150 head	Not meas.	(b)	--	--	1950	Storage; earth dam 22 feet high, 200 feet long. Storage capacity: 10 af.	
D16N/10W-28H1 (Sheet 2)	Paul Gambonini	Spring tributary to Scotts Creek	Domestic Stock.	(d) 150 head	Not meas.	Riparian	--	--	About 1915	Gravity; 1.2 miles of 1.5- inch pipe.	Former owners: Boone Howard, John McClendon, George Twiggs, Hal Owens, James Cockburn.

* See remarks.
-- Information not available.
a Refers to applications to appropriate water filed with the State Water Hights Board.
b Insufficient information to determine typs of apparent water right.
c Lake County Records.
d Domestic use by less than 5 families or connections.
e For additional information, see appendix C.

TABLE 6

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
BEAR CREEK SUBUNIT																		
12SN/5W-29F1	York Hill Ditch	Irrigation Stockwatering Recreation	200 feet above reservoir inlet	Water-stage recorder and depth-flow relationship	16	29	19	12	11	3	0	0	0	0	1	16	107	
BERRYESSA SUBUNIT																		
07N/3W-16M1	Moskowite Reservoir	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	2	0	7	48	18	11	9	0	0	95	
07N/3W-17D1	J. Roy, Don and Clint Pridmore	Irrigation	At area of use	Estimate	----------**----------												50	
08N/2W-26J1	Walter and Alma Priest	Irrigation	At area of use	Sprinkler test and power record	0	0	1	0	0	4	4	6	4	5	0	0	24	
BIG VALLEY SUBUNIT																		
11N/8W-4H1*	Richard and Elna Newfield	Irrigation Stockwatering	0.2 mile below intake	Water-stage recorder and depth-flow relationship	----------NR----------						8	17	20	17	33	NR	95	Point of diversion moved 500 feet upstream to this location in 1960.
12N/8W-5D1	Geneva V. McIntire L. H. McIntire	Irrigation Domestic Stockwatering	At intake	Water-stage recorder and depth-flow relationship	----NR----		11	36	30	18	15	12	12	12	12	NR	158	
12N/8W-5D2	Godfrey L. Hildebrand Estate	Irrigation Domestic Stockwatering	At area of use	Water-stage recorder and depth-flow relationship	----NR----		0	73	71	62	66	50	47	55	29	NR	453	
12N/8W-5M1	Geneva V. McIntire L. H. McIntire	Irrigation Stockwatering	100 feet below intake	Water-stage recorder and depth-flow relationship	----------NR------			12	12	12	12	12	12	12	12	4	100	
13N/4W-27K1	Wayne S. Myers	Irrigation	At pump	Pump test and power	0	0	0	2	8	11	12	13	13	9	2	0	70	
13N/4W-27Q1	Michael F. Burton	Irrigation	At area of use	Sprinkler test and power records	0	0	0	2	3	6	8	10	7	5	1	0	42	

* See remarks
e Monthly value estimated
--**-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 6 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
BIG VALLEY SUBUNIT (Continued)																		
D13N/9W-27Q2	Juan Erquiaga Wallace G. Price Elliott and Rika V. Redd	Irrigation Domestic Stockwatering Poultry watering	0.1 mile below intake	Water-stage recorder and depth-flow relationship	--------NR--------			0	129	70	98	50	43	91	0	NR	481	
D13N/9W-34H1	Gene E. and Dorothy Howerton Elmer R. Hutchings	Irrigation Domestic	0.3 mile below intake	Water-stage recorder and depth-flow relationship	---------NR--------			15	25	6	0	0	0	0	0	0	46	
D14N/9W-31D1	Glen Keithly	Irrigation	At pump	Pump test and power records	0	0	0	5	13	24	81	55	56	21	0	0	255	
D14N/9W-32A1	Francis Morrison	Irrigation	At pump	Pump test and power records	0	0	0	5	5	36	47	48	30	7	0	0	178	
D14N/9W-32E1	Waldo Shaul	Irrigation	At pump	Pump test and power records	0	0	0	0	4	10	13	21	13	4	0	0	65	
D14N/9W-33D1	James L. Morrison	Irrigation Stockwatering	At pump	Pump test and power records	0	0	0	14	6	27	45	22	0	0	0	0	114	
D14N/9W-33H1	S. J. Blower	Irrigation	At pump	Pump test and power records	0	0	0	1	0	5	21	0	0	0	0	0	27	
D14N/9W-33K1	John Medina	Irrigation	At pump	Pump test and power records	0	0	0	0	10	21	18	17	5	0	0	0	71	
D14N/9W-34A1	Glen and R. G. Keithly	Irrigation	At pump	Pump test and power records	0	0	0	37	38	70	109	123	88	76	31	0	572	
D14N/9W-34D1	Glen and R. G. Keithly	Irrigation	At pump	Pump test and power records	0	0	0	13	24	51	64	70	48	48	8	0	326	
D14N/9W-35D1	Marion Gopcevic, Estate of	Irrigation	At pump	Pump test and power records	0	0	0	0	30	142	144	160	13	83	55	0	627	
D14N/10W-25J1	Charlotte Pinkham, Estate of	Irrigation	At area of use	Pump test and power records	0	0	0	0	1	5	9	8	0	0	0	0	23	
INDIAN VALLEY SUBUNIT																		
D14N/7W-14J1	E. Horton	Irrigation	At area of use	Sprinkler test and power records	0	0	0	2	5	9	12	10	6	3	1	0	48	

* See remarks
e Monthly value estimated
--*-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 6 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet													Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				LOWER LAKE SUBUNIT														
12N/7W-1C1	George Schmidt	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	5	16	18	16	13	3	0	0	71	
12N/7W-1D1	Clarence L. Bonham Abe Brookins George Schmidt	Irrigation	At pump	Pump test and power record	0	0	0	0	3	37	48	48	35	7	0	0	178	
12N/8W-4B1 12N/8W-4B2	Paul Shively Kim Canavarro	Irrigation Stockwatering	Near intake	Water-stage recorder and depth-flow relationship	---------NR----			43	46	43	45	41	36	35	30	36	355	
13N/7W-20M1	Manakee Water Company	Municipal	(*)	(*)	1	1	1	1	1	3	4	3	2	1	1	1	20	Record obtained from Manakee Water Company
13N/7W-28F1	Highlands Water Company	Municipal	(*)	(*)	0	0	7	8	12	21	27	25	18	11	7	7	143	Record obtained from Highlands Water Company
13N/7W-28G1	Highlands Water Company	Municipal	(*)	(*)	8	8	9	8	13	20	29	26	20	9	7	7	164	Record obtained from Highlands Water Company
13N/7W-34R1	Charlee M., William and Nora Anderson	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	3	13	9	7	2	0	0	34	
13N/8W-4Q1	Buckingham Park Water System	Domestic	(*)	(*)	1	1	1	1	2	3	3	3	2	1	1	0	19	Record obtained from Public Utilities Commission
13N/8W-12E1 13N/7W-17N1 13N/7W-18L1	Clearlake Park Water Company	Municipal	(*)	(*)	3	3	4	4	7	13	14	14	7	4	4	3	80	Record obtained from Public Utilities Commission
14N/7W-32F1	Mrs. Worthen Bradley	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	5	17	28	27	22	12	0	0	111	
				MIDDLETOWN SUBUNIT														
10N/6W-9J1	Detert Lake	Irrigation Stockwatering	At intake	Water surface observation and area capacity curve	------NR--------			94	264	444	588	171	137	0	0	0	1,698	Amounts reported are releases from storage
10N/7W-10J1	C. R. and Eleanor C. Vines	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	0	1	3	2	1	0	0	7*	Irrigated 19 acres, 13 of which received only partial irrigation in 1960
11N/6W-19F1	Barbara Trimble	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	5	7	18	36	27	11	2	0	0	106	

* See remarks
e Monthly value estimated
--e-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 6 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
MIDDLETOWN SUBUNIT (Continued)																		
D11N/6W-20N1	Eric W. and Ruth V. Johnson	Irrigation	At pump	Pump test and power record	0	0	0	0	41	86	54	0	0	0	0	0	181	
D11N/6W-28D1	Mary A. Bowcher	Irrigation Stockwatering	At area of use	Sprinkler test and operation record	0	0	0	0	3	7	7	7	7	3	0	0	34	
D11N/6W-28G1	Mary A. Bowcher	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	3	11	16	12	2	0	0	44	
D11N/6W-28H1 D11N/6W-28H2	Mary A. Bowcher	Irrigation	At pump	Pump test and power record	0	0	0	0	5	32	43	41	32	6	1	0	160	
D11N/6W-34K1	McCreary Lake	Irrigation Stockwatering	At pumps	Pump tests and power record	0	0	0	71	85	282	342	293	309	0	0	0	1,382	Amounts reported are releases from storage
D11N/7W-26P1	L. J. Skaggs	Irrigation	1.0 mile below intake	Pump test and power record	0	0	0	0	0	54	58	63	63	65	0	0	303	
D11N/7W-26P2	Ralph K. Davies	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	7	48	55	44	29	14	6	0	203	
D11N/7W-29N1	Ralph K. Davies	Irrigation Stockwatering	Near intake	Water-stage recorder and depth-flow relationship	---------NR----------				0	153	163	114	89	127	77	NR	723	
D11N/7W-34Q1	Ralph K. Davies	Irrigation	At area of use	Sprinkler test and power record	0	0	0	2	10	8	17	9	0	0	0	0	46	
D12N/8W-34R1	Adams Spring Company	Domestic Recreation	At pump	Pump test and power record	2	NR	3	11	11	4	8	18	12	9	4	9	91	
POPE VALLEY SUBUNIT																		
D8N/5W-11G1	Human Relations Research Foundation	Irrigation Stockwatering	At area of use	Sprinkler test and power records	0	0	0	0	4	16	20	18	9	0	0	0	67	
D9N/5W-8E1	Joe Stern	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	0	5	16	17	12	8	0	0	58	
D9N/5W-10E1	Dick Week	Irrigation* Industrial Stockwatering	At intake	Water surface observation and area capacity curve	----------NR----------					93	97	97	81	42	---NR---		410	No water was diverted for irrigation in 1960

* See remarks
e Monthly value estimated
--**-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 6 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet													Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
POPE VALLEY SUBUNIT (Continued)																		
D9N/5W-11L1	James Connor	Irrigation Stockwatering	At area of use	Sprinkler test and power record	D	0	0	D	0	8	2	6	0	0	0	0	16	Irrigates jointly with 9N/5W-11Q1
D9N/5W-11Q1	James Connor	Irrigation Stockwatering	At pump	Power record	0	0	0	0	4	1	0	0	0	0	0	0	5	Irrigates jointly with 9N/5W-11L1
D9N/6W-1P1	George Heibel	Irrigation Stockwatering Recreation	At pump	Power record	0	0	0	0	1	3	2	2	6	4	1	0	19	
D9N/6W-12G1	Duvall Lake	Irrigation Industrial Stockwatering Recreation	At area of use	Sprinkler test and power record	0	0	D	0	0	39	38	36	35	5	3	0	156	
D9N/6W-13J1	Norman K. Blanchard	Irrigation Stockwatering Recreation	Reservoir perimeter	Stadia survey-volumetric computation	----------NR----------												15*	Total amount includes storage releases from 9N/5W-18C1
SCOTT VALLEY SUBUNIT																		
D13N/11W-1R1	Margaret F. Dorst	Irrigation Stockwatering	300 feet below intake	Water-stage recorder and depth-flow relationship	------NR------			0	0	11	7	1	0	0	0	0	19	
D13N/11W-12H1	Peter's Reservoir	Irrigation Stockwatering	250 feet below intake	Water-stage recorder and depth-flow relationship	------NR------			0	0	3	6	17	12	4	1	0	43	
D14N/10W-11D1	Kenneth Rickabaugh	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	0	9	7	0	0	0	0	16	
D14N/10W-11G1	Gene Burger	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	1	2	14	6	2	0	0	0	25	
D14N/10W-22H1 D14N/10W-22H2	Lakeport Municipal Waterworks	Municipal	(*)	(*)	30	31	32	35	50	86	80	69	55	37	31	32	574	Record obtained from Lakeport Municipal Waterworks
D15N/10W-9N1	Mark and Hilde Mendenhall	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	4	6	0	0	0	0	0	10	

* See remarks
e Monthly value estimated
--e-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 6 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet													Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				UPPER LAKE SUBUNIT														
D14N/8W-6E1	Lucerne Water Company	Municipal	(*)	(*)	9	6	7	6	7	11	14	14	11	8	9	9	111	Record obtained from the Lucerne Water Company
D15N/9W-5N1	Paul Alexander	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	9	9	6	1	0	0	0	25	
D15N/9W-7P1	Donald M. Griner	Irrigation Stockwatering	At pump	Pump test and power record	0	0	0	0	0	55	19	59	30	0	0	0	163	
D15N/9W-17E2	Rex Pierson	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	0	5	8	0	0	0	0	13	
D15N/9W-17M1	J. F. Guntly	Irrigation	At pump	Pump test and power record	0	0	0	0	1	15	19	20	12	6	0	0	73	
D15N/9W-17N1	John W. and Anna R. Respini	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	1	3	3	2	1	0	0	0	10	
D15N/9W-20C1	Mark Mendenhall	Irrigation	At pump	Pump test and power record	0	0	0	0	0	0	14	13	15	0	0	0	42	
D15N/9W-20C2	B. F. Modglin	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	0	16	16	16	21	0	0	0	69	
D15N/9W-20F2	Edward J. Tolman	Irrigation	At pump	Pump test and power record	0	0	0	0	8	22	19	17	13	2	0	0	81	
D15N/9W-20L1	Earl Proett	Irrigation Stockwatering	At pump	Pump test and power record	0	0	1	0	14	24	22	22	23	2	1	0	109	
D15N/9W-20M1	B. F. Modglin	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	21	32	35	26	4	0	0	118	
D15N/9W-20P1	Modglin and Knudson Construction Company	Irrigation	At pump	Pump test and power record	0	0	0	0	1	7	36	28	4	6	0	0	82	
D15N/9W-28F1	Modglin and Knudson Construction Company	Irrigation Stockwatering	At pump	Sprinkler test and power record	0	0	14	3	5	36	42	45	37	15	2	0	199	
D15N/9W-28H1	Jim and Margaret Morrison	Irrigation	300 feet above pump	Hoff Meter in riser pipe and power record	0	0	0	0	0	14	57	43	1	0	0	0	115	

* See remarks
e Monthly value estimated
--*-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 6 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT, 1960

Diversion location	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				UPPER LAKE SUBUNIT (Continued)														
D15N/9W-29C1	Modglin and Knudson Construction Company	Irrigation	At pumps	Pump tests and power record	0	0	0	3	6	11	26	39	0	0	0	0	85*	Total amount is for two pumps
D15N/9W-29J1	Modglin and Knudson Construction Company	Irrigation	At area of use	Sprinkler test and power record	0	0	0	6	7	23	23	17	20	6	0	0	102	
D15N/9W-31P1	Allen W. Roberts	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	2	20	29	24	14	8	3	0	100*	Total amount is for two pumps
D15N/9W-32D1	Duane W. Bradley	Irrigation	At area of use	Sprinkler test	0	0	0	0	3	11	10	14	7	3	0	0	48	
D15N/9W-32D2	Albert J. and Pauline P. Asell	Irrigation	At area of use	Sprinkler test and power record	0	0	0	1	1	11	18	18	11	1	0	0	61	
D15N/10W-12P1	Louis F. Rose	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	5	5	5	0	0	0	0	15	
D15N/10W-12Q1	Louis F. Rose	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	5	7	2	0	0	0	0	14	
D15N/10W-13B1	Don Madia	Irrigation Stockwatering	At pump	Pump test and power record	0	0	0	0	0	6	16	11	9	0	0	0	42	
D16N/9W-31M1	Waverly J. and Kate Slattery	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	11	13	10	0	0	0	0	34	

* See remarks
e Monthly value estimated
--e-- Diversion estimated for period indicated
--NR-- No record for period indicated

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Diversion name or owner	Diversion location	Subunit	References	
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Abel, Bernard I.	See Konocti Bay Resort			
Abreu, Manuel	8N/5W-12E1	Pope Valley	18	53, 106, C-17
Adams Springs Company	12N/8W-34R1	Middletown	10	53
Agapoff, James	10N/7W-10G1	Middletown	14	50, 104
Alexander, Paul	15N/9W-5N1	Upper Lake	4	60, 71, 110
	15N/9W-5Q1	Upper Lake	4	60
Allen, Edith S.	13N/9W-33H1	Big Valley	8	42, 99, C-15
Amell, Albert J. and Pauline P.	15N/9W-32D2	Upper Lake	4	64, 72, 112
Ananos, Sterling and Delle	13N/9W-32R1	Big Valley	8	42
Anderson, Arthur L. and Genevieve	See Cobb Mountain Water Company			
Anderson, Charles M., William and Mora	13N/7W-34R1	Lower Lake	9	48, 68, 103
Anderson, Clay R.	15N/9W-17M2	Upper Lake	4	61
Anderson, George R.	10N/6W-27N1	Pope Valley	14	57
	10N/6W-27Q1	Pope Valley	14	57
Anderson, W. H.	See Wood, Melvin W. and Wilda M.			
Augenstein, Alfred E.	See Buckingham Park Water System			
Apline, T.	14N/7W-19J1	Lower Lake	7	49, 103
Badger, Robert A. and Selina F.	11N/8W-23B1	Middletown	12	53, 106
Barbettini, E.	12N/5W-17E1	Bear Creek	11	38, 97
Barnes, Jane K.	15N/9W-36E1	Upper Lake	4	64, 112
Beasley, Harold	10N/7W-10B1	Middletown	14	50, 104
Belcher, George P.	11N/6W-29N1	Middletown	12	52, 105, C-15

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Benson, Carl	9N/5W-11J1	Pope Valley	16	55
Berryessa Marina Resort	8N/3W-7Q1	Berryessa	18	39
Billingsley, S. A. Hanson, Roland	15N/9W-18H1	Upper Lake	4	61, 111
Blanchard, Norman K.	9N/5W-18C1 9N/6W-13J1	Pope Valley Pope Valley	16 16	55, 107 57, 70, 108
Blower, S. J.	14N/9W-33H1	Big Valley	6	44, 67, 100
Bonham, Clarence L. Brookins, Abe Schmidt, George	12N/7W-1D1	Lower Lake	10	46, 68, 102
Bowcher, Mary A.	11N/6W-28D1 11N/6W-28G1 11N/6W-28H1 11N/6W-28H2	Middletown Middletown Middletown Middletown	12 12 12 12	51, 69, 105 51, 69, 105 51, 69, 105, C-11 51, 69, 105
Bradley Mining Company	13N/7W-6Q1	Lower Lake	9	47
Bradley, Duane W.	15N/9W-32D1	Upper Lake	4	63, 72, 112
Bradley, Mrs. Worthen	14N/7W-32F1	Lower Lake	7	49, 68, 104
Bradshaw, S. P.	9N/5W-16N1 9N/5W-20A1	Pope Valley Pope Valley	16 16	55 55
Brookins, Abe	See Bonham, Clarence L.			
Brown, Jim Dennison, Lincoln Mitchell, Wilferd Snow, Robert Snow, Rodney Strickfaden, John Tony, Elery Tony, Sam	15N/9W-6D1	Upper Lake	4	60, 110
Buckingham Park Water System Augenstein, Alfred E.	13N/8W-4Q1	Lower Lake	8	48, 68
Burger, Gene	14N/10W-11F1	Scott Valley	6	58, 108
Burger Lake Burger, Gene	14N/10W-11G1	Scott Valley	6	58, 70, 108

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Diversion name or owner	Diversion location	Subunit	References	
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Burns, Sarah Joan, Katherine M. and John A.	9N/6W-11B1	Pope Valley	16	56, 107, C-15
Burton, Michael F.	13N/9W-27Q1	Big Valley	8	42, 66, 99
	See also Howerton, Gene E. and Dorothy			
Canavarro, Kim	12N/8W-4B1	Lower Lake	10	47, 68, 103
	13N/8W-28R1	Lower Lake	8	49
Cantrell, M. A.	15N/10W-33B1	Scott Valley	4	60
Cantwell, Tom M.	12N/6W-18M1	Lower Lake	11	46
Carlson, Harry and Marjorie	8N/3W-27D1	Berryessa	18	39, C-19
Cash, Clyde M.	15N/10W-17C1	Scott Valley	4	59, 109
Ciardella, Mario and Esta	12N/8W-22G1	Big Valley	10	41
Clear Lake Water Company	12N/6W-6B1	Lower Lake	11	33, 46
Clear Lake Park Water Company	13N/7W-17N1	Lower Lake	9	47, 68
	13N/7W-18L1	Lower Lake	9	47, 68
	13N/8W-12E1	Lower Lake	8	48, 68
Cobb Mountain Water Company	11N/8W-3N1	Big Valley	12	40, 98
Anderson, Arthur L. and Genevieve	11N/8W-9A1	Big Valley	12	40
Connor, James	9N/5W-11L1	Pope Valley	16	55, 70, 107
	9N/5W-11Q1	Pope Valley	16	55, 70, 107
Cooley, Frank M.	12N/7W-27B1	Lower Lake	10	47, 103
	12N/7W-27C1	Lower Lake	10	47, 103
Creager, Jay	14N/7W-16G1	Indian Valley	7	45
Crescent Bay Improvement Company	13N/7W-30J1	Lower Lake	9	48
Curtis, G. A.	14N/10W-15J1	Scott Valley	6	58, 108

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Diversion name or owner	Diversion location	Subunit	References	
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Davies, Ralph K.	11N/7W-26P2	Middletown	12	52, 69, 106
	11N/7W-29N1	Middletown	12	52, 69, 106, C-16
	11N/7W-32C1	Middletown	12	52, C-17
	11N/7W-32F1	Middletown	12	52
	11N/7W-34Q1	Middletown	12	52, 69, 106
Deacon, Sheldon T.	14N/9W-31A1	Big Valley	6	43, 100
	14N/9W-31A2	Big Valley	6	43
	14N/9W-32D1	Big Valley	6	43, 100
Dennis, Hazen A.	10N/7W-4D1	Middletown	14	50, 104
Dennison, Lincoln	See Brown, Jim			
Detert Lake Woodland Farms, Inc.	10N/6W-9J1	Middletown	14	50, 68, 104, C-11
Dorst, Margaret F.	13N/11W-1P1	Scott Valley	8	58, 108
	13N/11W-1R1	Scott Valley	8	58, 70, 108
	See also Peters Reservoir			
Dunk, Sidney M.	13N/9W-25P1	Big Valley	8	42, 99
Dutra, Manuel and Gladys	7N/4W-25H1	Berryessa	19	39, 97, C-22
Duvall Lake Duvall, Donald N.	9N/6W-12G1	Pope Valley	16	56, 70, 108, C-11
Emerson, Don	11N/8W-11N1	Big Valley	12	40
	11N/8W-11R1	Big Valley	12	40
Emerson, Don Hoberg, George and Frank	11N/8W-10H1	Big Valley	12	40
Erquiaga, Juan Price, Wallace G. Redd, Elliott and Rika V.	13N/9W-27Q2	Big Valley	8	42, 67, 99
Ford, Ernest J.	14N/7W-24N1	Indian Valley	7	45, 101
Fowler, Mrytle L.	12N/9W-5A1	Big Valley	10	41
Frates, Frank M. and Betty	11N/8W-10M1	Big Valley	12	40
Galatoire, Max J.	13N/8W-16R1	Lower Lake	8	49, 103

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PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion name or owner	Diversion location	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page No.
Gambonini, Paul	16N/10W-21Q1	Upper Lake	2	65
	16N/10W-28R1	Upper Lake	2	65
Garrison, Cliff	15N/6W-9C1	Indian Valley	5	45, 102
Ghiselin, Marion	13N/6W-6A1	Bear Creek	9	38, 97
Gifford's Resort Corporation	11N/8W-12L1	Big Valley	12	41
Giovanini, R. J.	15N/9W-20F1	Upper Lake	4	62, 111
Glidden, C. C.	9N/5W-9K1	Pope Valley	16	54, 107, C-13
	9N/5W-9K2	Pope Valley	16	54, 107, C-15
	9N/5W-9Q1	Pope Valley	16	54, 107
Gopcevic, Marion, Estate of	13N/9W-2C1	Big Valley	8	42, 99
	14N/9W-35D1	Big Valley	6	44, 67, 101
Graham, William H. and Hilda K.	13N/10W-14N1	Big Valley	8	43, 99, C-18
	13N/10W-23M1	Big Valley	8	43, 100
	13N/10W-26A1	Big Valley	8	43, 100
Gray, Mayrene	12N/6W-19R1	Middletown	11	53, C-14
Griner, Donald M.	15N/9W-7M1	Upper Lake	4	60, 110
	15N/9W-7P1	Upper Lake	4	61, 71, 110
Gross, Frank	10N/7W-10P1	Middletown	14	51, 105
Groteguth, Lawrence and Thelma E.	9N/5W-22K1	Pope Valley	16	56, 107, C-17
Guntly Brothers	15N/10W-4F1	Upper Lake	4	64
Guntly, J. F.	15N/9W-17M1	Upper Lake	4	61, 71, 110
Hammond, W. D.	9N/6W-1A1	Pope Valley	16	56, C-15
	10N/6W-36Q1	Pope Valley	14	57, 108, C-15
Hanson, Earle P.	10N/6W-8C1	Middletown	14	50, 104, C-13
Hanson, Roland	See Billingsley, S. A.			
Hardin, Y. M.	9N/4W-31L1	Pope Valley	17	53, 106

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Hartman, Frank	11N/6W-20E1	Middletown	12	51, 105
	11N/6W-20Q1	Middletown	12	51, 105
Heibel, George B. and Ruth V.	9N/6W-1P1	Pope Valley	16	56, 70, 107, C-13
	9N/6W-13E1	Pope Valley	16	57
	9N/6W-13F1	Pope Valley	16	57
	9N/6W-13L1	Pope Valley	16	57
	9N/6W-14A1	Pope Valley	16	57
Hidden Lake Russell, G. J.	14N/10W-3B1	Scott Valley	6	58, 108
Highlands Water Company	13N/7W-28F1	Lower Lake	9	48, 68
	13N/7W-28G1	Lower Lake	9	48, 68
Hildebrand, Godfrey L., Estate of	12N/8W-5B1	Big Valley	10	41, 98
	12N/8W-5G1	Big Valley	10	41, 66, 98
Hill, Chelton	14N/7W-31H1	Lower Lake	7	49, 103
Holberg, George and Frank	See Emerson, Don			
Hobson and Conn	15N/9W-19B1	Upper Lake	4	62
Hodges, O. H.	12N/7W-24H1	Lower Lake	10	47, 103
Hofacker, Henry	12N/7W-35C1	Lower Lake	10	47
Horton, E.	14N/7W-14J1	Indian Valley	7	45, 67, 101
Howerton, Gene E. and Dorothy Hutchings, Elmer R.	13N/9W-34H1	Big Valley	8	42, 67, 99
Human Relations Research Foundation	8N/5W-11G1	Pope Valley	18	53, 69, 106, C-13
Hutchings, Elmer R.	See Howerton, Gene E. and Dorothy			
Indian Valley Association	14N/6W-4F1	Indian Valley	7	45, 101
	15N/6W-16N1	Indian Valley	5	45, 102
	15N/6W-28D1	Indian Valley	5	45, 102
	15N/6W-28E1	Indian Valley	5	45, 102
Johnson, Eric W. and Ruth V.	11N/6W-20N1	Middletown	12	51, 69, 105
Johnson, LeRoy	15N/9W-17N2	Upper Lake	4	61

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Jones, B. C.	14N/8W-28C1	Lower Lake	6	49, 104
Jones, Lulu C.	15N/9W-18G1	Upper Lake	4	61, 110
Jones, Stephen R. and Marion S.	16N/5W-33K1	Bear Creek	6	38, 97, C-16
Keegan, Matt J., Jr.	See York Hill Ditch See also York Hill Reservoir			
Keeline, James J.	11N/8W-14G1	Middletown	12	52
Keeling, H. Vincent	15N/9W-24N1	Upper Lake	4	63
Keithly, Glen	14N/9W-31D1	Big Valley	6	43, 67, 100
Keithly, Glen and R. G.	14N/9W-34A1 14N/9W-34D1	Big Valley Big Valley	6 6	44, 67, 101 44, 67, 101
Kennedy, Kenneth, Mary, and John D.	14N/7W-8Q1	Indian Valley	7	45
Keppel, Jack L. and Babette J.	9N/5W-36A1	Pope Valley	16	56, 107, C-13
Kiesecker, Frank L.	12N/7W-8A1	Lower Lake	10	46
Kimrey, Charles O.	12N/7W-2B1	Lower Lake	10	46, 102
Kirkpatrick, Gordon R. and B. H.	9N/5W-19A1 9N/5W-20D1	Pope Valley Pope Valley	16 16	55, C-14, C-17 55, C-14
Konocti Bay Resort Abel, Bernard I.	13N/8W-15D1	Lower Lake	8	49, 103
Lake County Cannery	15N/10W-12R1 15N/10W-13B2	Upper Lake Upper Lake	4 4	64, 113 65
Lake LaVerne Pridmore, J. Roy, Don, and Clint	7N/3W-8R1	Berryessa	19	38, 97, C-15
Lakeport Municipal Waterworks	14N/10W-22H1 14N/10W-22H2	Scott Valley Scott Valley	6 6	59, 70, 101, 109 59, 70, 101, 109

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La Rocque, Arthur	12N/7W-22Q1	Lower Lake	10	46, 102, C-18
Leithead, James A.	14N/10W-2P1	Scott Valley	6	58, 108
Livermore, N. B. and Sons	10N/6W-31C1	Middletown	14	50, 104
	10N/6W-31F1	Middletown	14	50, 104
	10N/6W-28R1	Pope Valley	14	57
	10N/6W-28R2	Pope Valley	14	57
Lovisone, Josephine	12N/7W-23D1	Lower Lake	10	47, 102
Lucerne Water Company	14N/8W-6E1	Upper Lake	6	60, 71
Madia, Don	15N/10W-13B1	Upper Lake	4	64, 72, 113
Maede, A. R.	11N/8W-26H1	Middletown	12	53
	11N/8W-36H1	Middletown	12	53
Manakee Water Company	13N/7W-20H1	Lower Lake	9	48, 68
Manning, Francis A.	14N/9W-33G1	Big Valley	6	44, 100
McCreary Lake Woodland Farms, Inc.	11N/6W-34K1	Middletown	12	52, 69, 104, C-15
McGloin, Vic	12N/8W-9K1	Big Valley	10	41, 99
McIntire, Geneva V.,	12N/8W-5D1	Big Valley	10	41, 66, 98
McIntire, L. H.	12N/8W-5M1	Big Valley	10	41, 66, 98
Medina, John	14N/9W-33K1	Big Valley	6	44, 67, 101
Mendenhall, Mark	15N/9W-20C1	Upper Lake	4	62, 71, 111
Mendenhall, Mark and Hilda	15N/10W-9H1	Scott Valley	4	59, 70, 112
Miller, Raymond V. and Ruth J.	15N/10W-20L1	Scott Valley	4	59, 109
Mitchell, Wilferd	See Brown, Jim			

TABLE 7 (Continued)

INDEX TO SURFACE WATER DIVERSIONS
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion name or owner	Diversion location	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page No.
Modglin, B. F.	15N/9W-18Q1	Upper Lake	4	62, 111
	15N/9W-20C2	Upper Lake	4	62, 71, 111
	15N/9W-20M1	Upper Lake	4	62, 71, 111
	15N/9W-29B2	Upper Lake	4	63, 112
Modglin and Knudson Construction Company	15N/9W-20P1	Upper Lake	4	62, 71, 111
	15N/9W-28F1	Upper Lake	4	63, 71, 111
	15N/9W-29B1	Upper Lake	4	63, 112
	15N/9W-29C1	Upper Lake	4	63, 72, 112
	15N/9W-29J1	Upper Lake	4	63, 72, 112
Monticello Dam United States Bureau of Reclamation	8N/2W-29G1	Berryessa	19	34, 39, C-12, C-13
Morrison, Francis	14N/9W-32A1	Big Valley	6	43, 67, 100
Morrison, James L.	14N/9W-33D1	Big Valley	6	44, 67, 100
Morrison, Jim and Margaret	15N/9W-28H1	Upper Lake	4	63, 71, 111
Moskowite, David L.	12N/7W-15P1	Lower Lake	10	46, 102, C-16
Moskowite Reservoir Moskowite, George	7N/3W-16H1	Berryessa	19	38, 66, 97, C-12, C-13, C-15
Myers, Wayne S.	13N/9W-27K1	Big Valley	8	42, 66, 99
Napa Valley Ranch Club	7N/4W-12J1	Berryessa	19	39, 97
Newfield, Richard and Elna	11N/8W-4H1	Big Valley	12	40, 66, 98
	12N/8W-33R1	Big Valley	10	41, 99
Ogando, Joe R.	10N/7W-10H1	Middletown	14	50, 105
Ora, Art	14N/10W-16F1	Scott Valley	6	58
Page, H. L.	9N/5W-21P1	Pope Valley	16	55, C-15
Pedotti, A. M.	10N/5W-16E1	Middletown	15	49
Peoples, Ross	13N/9W-23B1	Big Valley	8	42, 99
Perini, Julia, Lily, Mary, and Theresa	12N/7W-16P1	Lower Lake	10	46, 102

TABLE 7 (Continued)

INDEX TO SURFACE WATER DIVERSIONS
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion name or owner	Diversion location	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page No.
Perusina Brothers	15N/9W-6J1	Upper Lake	4	60
Peters Reservoir Dorst, Margaret F.	13N/11W-12H1	Scott Valley	8	58, 70, 108
Peterson, Herbert	15N/9W-17E1	Upper Lake	4	61, 110
P. H. D. Ranch	15N/10W-29B1	Scott Valley	4	60, 109, C-12
Pickrell, Elwood and Estelle	15N/10W-17B1	Scott Valley	4	59, 109
Pierson, Rex	15N/9W-17E2	Upper Lake	4	61, 71, 110
Pinkham, Charlotte, Estate of	14N/10W-25J1	Big Valley	6	44, 67, 101
Pipe Fitters and Plumbers Union	13N/8W-10M1 13N/8W-10P1	Lower Lake Lower Lake	8 8	48, 103 48, 103
Poe, Alfred L.	10N/4W-16C1 10N/4W-21K1	Berryessa Berryessa	15 15	39 40
Price, Wallace G.	See Erquiaga, Juan			
Pridmore, J. Roy, Don, and Clint	7N/3W-17D1 See also Lake LaVerne	Berryessa	19	38, 66, 97
Priest, Walter and Alma	8N/4W-23M1 8N/4W-26J1	Berryessa Berryessa	18 18	39, C-14 39, 66, 98, C-15
Proett, Earl	15N/9W-20L1	Upper Lake	4	62, 71, 111
Reclamation District No. 2070	15N/9W-29C2	Upper Lake	4	63, 112
Redd, Elliott and Rika V.	See Erquiaga, Juan			
Respini, John W. and Anna R.	15N/9W-17N1	Upper Lake	4	61, 71, 110
Rickabaugh, Kenneth	14N/10W-11D1	Scott Valley	6	58, 70, 108
Roberts, Allen W.	15N/9W-31H1	Upper Lake	4	63, 72, 112
Robertson, Herbert A. and Ruth D.	15N/10W-20D1	Scott Valley	4	59, 109

TABLE 7 (Continued)

INDEX TO SURFACE WATER DIVERSIONS
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion name or owner	Diversion location	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page No.
Robey, E. A. and Company, Inc.	13N/7W-20J1	Lower Lake	9	48
Rose, Louis F.	15N/10W-12P1	Upper Lake	4	64, 72, 112
	15N/10W-12Q1	Upper Lake	4	64, 72, 113
Russell, G. J.	See Hidden Lake			
Sandage, George A.	15N/10W-8R1	Scott Valley	4	59, 109
Schmidt, George	12N/7W-1C1	Lower Lake	10	46, 68, 102
	See also Bonham, Clarence L.			
Seely, E. M.	15N/10W-1R1	Upper Lake	4	64, 112
Sempell, Otto	10N/7W-3K1	Middletown	14	50, 104
Shaul, Waldo	14N/9W-32E1	Big Valley	6	43, 67, 100
Shively, Paul	12N/8W-4B2	Lower Lake	10	47, 68, 103
Skaggs, L. J.	11N/7W-26P1	Middletown	12	52, 69, 105
Slattery, Waverly J. and Kate	16N/9W-31M1	Upper Lake	2	65, 72, 113, C-11
Snow, Robert	See Brown, Jim			
Snow, Rodney	See Brown, Jim			
Stahl, Ed	12N/8W-25R1	Middletown	10	53
Stern, Joe	9N/5W-5N1	Pope Valley	16	54, 106
	9N/5W-7C1	Pope Valley	16	54
	9N/5W-8E1	Pope Valley	16	54, 69, 106, C-15, C-16
Stockum, S. F.	13N/8W-22D1	Lower Lake	8	49, 103
Storman, George	10N/5W-35B1	Berryessa	15	40
Strickfaden, John	15N/9W-6C1	Upper Lake	4	60, 110
	See also Brown, Jim			
Strickler, Don and Madeline	11N/8W-14F1	Middletown	12	52

TABLE 7 (Continued)

INDEX TO SURFACE WATER DIVERSIONS
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion name or owner	Diversion location	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page No.
Sullivan, George	12N/7W-1D2	Lower Lake	10	46, 102
Thomas, C. E.	13N/7W-35J1	Lower Lake	9	48
Tilley, Jack J.	See Indian Valley Association			
Tolman, Edward J.	15N/9W-20F2	Upper Lake	4	62, 71, 111
	15N/9W-20L2	Upper Lake	4	62, 111
Tony, Elery	See Brown, Jim			
Tony, Sam	See Brown, Jim			
Treanor, E. D.	See McGloin, Vic			
Trimble, Barbara	11N/6W-19F1	Middletown	12	51, 68, 105
Tule Lake Ranch	15N/10W-11Q1	Upper Lake	4	64, 112
Tyrer, Leland R. and Myrtle	15N/10W-8Q1	Scott Valley	4	59, 109
United States Bureau of Indian Affairs	14N/9W-32C1	Big Valley	6	43
	14N/9W-32F1	Big Valley	6	43, 100
	14N/9W-32F2	Big Valley	6	44, 100
United States Bureau of Reclamation	See Monticello Dam			
Usibelli, Emil	9N/5W-23Q1	Pope Valley	16	56, 107
	9N/5W-27K1	Pope Valley	16	56, 107
Vines, C. R. and Eleanor C.	10N/7W-10J1	Middletown	14	51, 68, 105
	10N/7W-10R1	Middletown	14	51, 105
Wade, Virgil	16N/9W-32P1	Upper Lake	2	65, 113
Walker, M. D.	10N/4W-9M1	Berryessa	15	39, 98
Wandtke, Aurthur	9N/6W-1C1	Pope Valley	16	56
Warner, Laurence G. and Hazel	12N/8W-13Q1	Lower Lake	10	47, 103
Wattenburger, James H.	15N/10W-20Q1	Scott Valley	4	59, 109

TABLE 7 (Continued)

INDEX TO SURFACE WATER DIVERSIONS
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT

Diversion name or owner	Diversion location	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page No.
Week, Dick	9N/5W-3Q1	Pope Valley	16	53, 106, C-16
	9N/5W-10E1	Pope Valley	16	54, 69, 107, C-12, C-14, C-16
	9N/5W-10H1	Pope Valley	16	54, 107, C-13
	9N/5W-10N1	Pope Valley	16	54, 107
	9N/5W-10Q1	Pope Valley	16	55, 107
Weger, Audrey	15N/9W-18E1	Upper Lake	4	61, 110
	15N/9W-18L1	Upper Lake	4	62, 111
Wetmore, G. A.	15N/9W-17D1	Upper Lake	4	61, 110
Wood, Melvin W. and Wilda M.	12N/9W-10F1	Big Valley	10	41, 99
	12N/9W-10H1	Big Valley	10	41, 99
Woodland Farms, Inc.	10N/5W-6R1	Middletown	15	49
	10N/6W-1J1	Middletown	14	50
	See also Detert Lake			
	See also McCreary Lake			
York Hill Ditch Keegan, Matt J., Jr.	15N/5W-19F1	Bear Creek	5	38, 66, 97
York Hill Reservoir Keegan, Matt J., Jr.	15N/5W-19A1	Bear Creek	5	38, 97, C-13

CHAPTER III. LAND USE

The results of a survey of water use and diversion facilities in the Putah-Cache Creeks Hydrographic Unit were presented in Chapter II. In this chapter, the results of a survey of present land use as related to water use and a brief summary of historical conditions are reported. A thorough knowledge of the nature and extent of land and water uses under past and existing conditions is one of the primary requisites in evaluating future water requirements.

Historical Land Use

The first recognized agricultural land use in the unit was about 1840, when settlers arrived to begin farming activities in the fertile valleys near Clear Lake. Prior to the settlers' arrival, the land, with an abundant supply of obsidian (for arrowheads) and game, was inhabited by the Pomo Indians.

The early agricultural interests centered around the production of grain, hay, and livestock. Today the major crops are pears and walnuts, which constitute 42 percent of the total agricultural land in production and account for approximately 75 percent of the unit's total agricultural economy. The raising of livestock has continued to have significant importance in the unit, particularly in the Upper Putah Creek area.

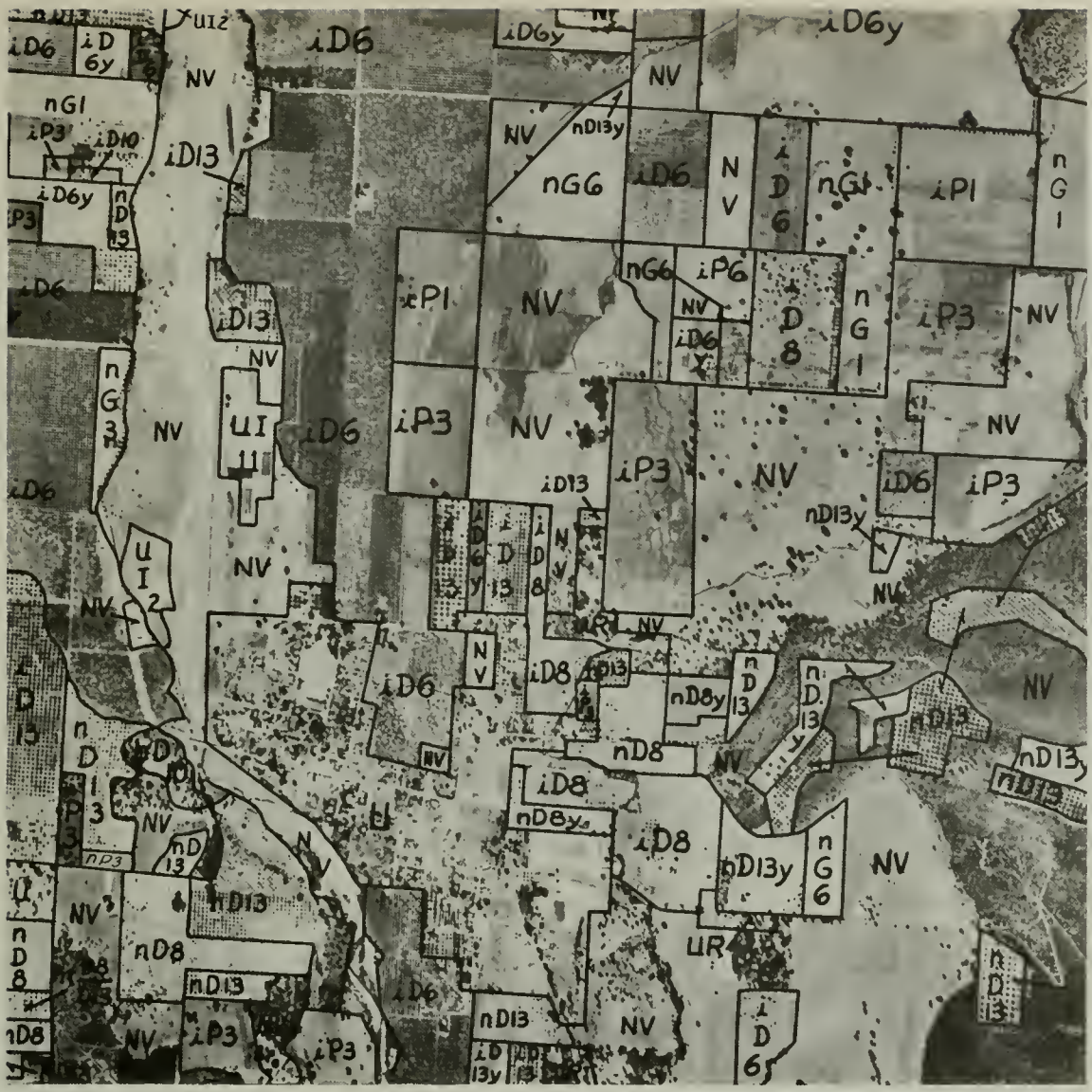
Previous land use surveys utilized in preparing this report are; the 1946 survey in Big Valley by the Bureau of Reclamation, U. S. Department of the Interior; the 1948-1949 survey by the Department of Water Resources; and a resurvey by the Department of Water Resources in 1952-1953.

Methods and Procedures

A detailed survey of land use in the Putah-Cache Creeks Hydrographic Unit was conducted in 1960. Land use analysts delineated the use of each parcel of land on the aerial photographs that had the surface water diversion locations identified from the water use survey. The unit was traversed by automobiles as completely as roads and terrain permitted and, where necessary, inspections were made on foot. An example of land use delineated on an aerial photograph is shown on page 89.

After completion of the field mapping, the data delineated on the photographs were transferred to copies of United States Geological Survey quadrangle maps at a scale of 1:24,000. This procedure was necessary to bring the delineated areas to a common scale for accurate determination of acreages. These maps, showing the land use, the location of all diversions, and the fields associated with each diversion, including idle and fallow lands, were colored according to the land use categories. Public meetings were held at which the local people were asked to review and submit revisions, if any. These maps were revised if warranted, and then used in the preparation of Plate 2.

A duplicate set of these maps was used in computing the acreages of the land uses. Each delineated area was manually cut out and was carefully weighed on an analytical balance. These weights were converted to acreages using ratios determined for each of the individual maps. This method has proven to be a very expedient and accurate means of area determination where many small parcels are involved.



Example of Land Use Delineated on Aerial Photograph

Irrigated			Nonirrigated		
iP1	-	alfalfa	nP3	-	mixed pasture
iP3	-	mixed pasture	nG1	-	barley
iP6	-	sudan	nG3	-	oats
iD6	-	pears	nG6	-	mixed hay and grain
iD6-Y	-	young nonbearing pears	nD8	-	prunes
iD8	-	prunes	nD8-Y	-	young nonbearing prunes
iD10	-	miscellaneous deciduous	nD10	-	miscellaneous deciduous
iD13	-	walnuts	nD13	-	walnuts
iD13-Y	-	young nonbearing walnuts	nD13-Y	-	young nonbearing walnuts

Other

NV	-	Native vegetation	UI 2	-	gravel processing plant
UR	-	Residential	UI 11	-	fruit and vegetable canneries
U	-	Urban			

Present Land Use

The land uses, as mapped in this survey, are tabulated as they relate to water use such as irrigated lands, naturally high water table lands, dry-farmed lands, urban lands, and recreational lands. Lands not falling into one of these categories were mapped and are tabulated as native vegetation. Sheets 1 through 19 of Plate 2 are maps detailing the land uses. The acreages of land uses within each subunit are presented in Table 8, "Land Use in Putah-Cache Creeks Hydrographic Unit, 1960," on page 96. These values represent gross acreages, including nonwater service areas such as roads, ditches, building and storage areas, and miscellaneous rights-of-way, which occur within mapped areas.

Irrigated Lands

Irrigated lands, as designated in this report, include all agricultural lands which receive artifically applied water. The acreages of irrigated lands are reported in Table 9, "Irrigated Lands," on page 97, tabulated by individual surface water diversion or by ground water, and segregated into forage crops, field crops, orchard, truck crops, miscellaneous, and idle or fallow irrigated lands. Forage is further subdivided into alfalfa, sudan, and pasture; native pasture lands having a high water table induced by the application of irrigation water are included under pasture. Field crops are subdivided into corn, hops, and sorghum. Orchard is subdivided into pears, prunes, walnuts, and miscellaneous. Idle irrigated lands are those lands which were not irrigated in the year of survey but which had been irrigated within the preceding three years. Fallow irrigated lands are those cultivated lands which may have been irrigated during the year of survey, but which at the time of survey were only tilled and not planted to a crop.

Irrigated Pasture in Big Valley

Cattle Grazing Near Upper Lake

The irrigated lands were identified on work maps by diversion location and by crop. On Plate 2 the irrigated lands are grouped into six categories: (1) lands which received a full irrigation during the year of survey, (2) lands which received only partial irrigation because of insufficient water supply, (3) lands usually irrigated but which were idle or fallow in 1960, (4) dry-farmed lands susceptible of irrigation, (5) lands irrigated entirely by ground water, and (6) lands irrigated by surface and ground water. Dry-farmed lands susceptible of irrigation are those lands planted to a dry-farmed crop which had a usable irrigation system in existence at the time of the survey.

Naturally High Water Table Lands

In addition to the lands which receive water as described above, there were lands supporting vegetation utilizing water from a naturally high water table, such as mountain meadows or lands adjacent to lakes and streams. These are shown in Table 8 and on Plate 2 as "Meadowlands." If standing water was observable in an area on which tules, cattails, bullrushes, and similar vegetation were growing, the area is shown in Table 8 and on Plate 2 as "Marshlands."

Dry-Farmed Lands

Dry-farmed lands are those lands normally planted to a crop but which do not receive artificially applied water and includes all lands so farmed whether or not a crop is produced in the year of survey. Although lands were mapped as "dry-farmed idle" if uncultivated in the year of survey and "dry-farmed fallow" if tilled but without a crop, they are shown in Table 8 and on Plate 2 as "Dry-Farmed Lands." Lands which had been uncultivated for more than three years and appeared to have reverted to "native vegetation," were so mapped.

It should be noted that the term "dry-farmed" as used herein refers to the farming practice on the lands and not to a lack of soil moisture.

Since noncultivated range lands are usually indistinguishable from similar lands not used for grazing purposes, both were designated as native vegetation. Water use in both cases is essentially the same and is dependent upon precipitation.

Urban Lands

Urban lands include the total areas of cities, towns, small communities, industrial plots, lawn areas, and cemeteries, which were large enough to be delineated. The acreages represent gross delineations, including streets and vacant lots. In this survey the boundaries of urban communities were delineated to include all lands with a density of one house or more per two acres.

Recreational Lands

Recreational lands were mapped on the aerial photographs in the field in four categories: (1) residential, (2) commercial, (3) camp and trailer sites, and (4) parks. Recreational residential lands include permanent and summer home tracts within a primarily recreational area. The estimated density of homes per acre was also indicated. Recreational commercial lands included those containing motels, resorts, hotels, stores, restaurants, and similar commercial establishments in primarily recreational areas. Lands mapped in the camp and trailer site category, included those areas so used within primarily recreational areas outside the boundaries of parks. The entire area within the boundaries of parks was included without regard to specific uses. Obviously, nearly all of the mountainous and water surface areas are suitable for some recreational activities; however, for the purpose of this land use survey, consideration was given only

to those lands where some fairly intensive development requiring water service was evident.

The recreational lands are combined in one group in Table 8 and on Plate 2. The areas delineated were not necessarily fully developed.

Native Vegetation

Lands which were essentially in a native state and not included in any of the above categories were mapped as native vegetation. These lands may have been used to some extent for mining, commercial timber production, livestock range, and recreational activities such as fishing, hunting, hiking, and picnicking. They total approximately 916,350 acres or 94 percent of the Putah-Cache Creeks Hydrographic Unit. Included in these areas are water surfaces, scattered residences, farm buildings, storage yards, military reservations, and other isolated uses covering a few acres or less which were too small to be mapped separately.

The major water surface areas included under the native vegetation classification are the large surface areas of Clear Lake, 39,320 acres and Lake Berryessa, 19,130 acres. The surface area of Clear Lake, as reported herein, is that determined by the Land Use and Land Classification Surveys conducted for this report. It does not agree with the surface areas previously reported in other publications due to the differentiation of the extensive marshlands around the periphery of the lake as "Marshlands" rather than water surface area.

Campgrounds in
Clear Lake State Park

TABLE 8

LAND USE IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Subunit and County	Irrigated lands	Naturally high water table lands		Dry-farmed lands	Urban lands	Recreational lands	* Native vegetation	Total
		Meadowlands	Marsh lands					
Bear Creek Subunit								
Colusa County	422	0	0	2,335	0	2	63,008	65,787
Lake County	25	0	0	499	17	0	55,763	56,304
Yolo County	0	0	0	29	43	0	21,870	21,942
	467	0	0	2,863	60	2	140,641	144,033
Berryessa Subunit								
Napa County	238	0	0	583	41	286	152,272	153,420
Big Valley Subunit								
Lake County	7,577	264	515	6,745	430	1,257	71,805	88,593
Mendocino County	0	0	0	0	0	0	980	980
	7,577	264	515	6,745	430	1,257	72,785	89,573
Indian Valley Subunit								
Colusa County	0	0	0	0	0	0	202	202
Lake County	245	5	0	667	12	6	126,209	127,144
	245	5	0	667	12	6	126,411	127,346
Lower Lake Subunit								
Lake County	1,956	386	760	6,115	1,236	1,240	73,732	85,425
Middletown Subunit								
Lake County	1,998	28	16	2,471	186	489	126,929	132,117
Napa County	11	0	0	240	0	290	27,890	28,431
	2,009	28	16	2,711	186	779	154,819	160,548
Pope Valley Subunit								
Lake County	0	0	0	0	0	0	71	71
Napa County	552	13	0	1,903	18	76	47,248	49,810
	552	13	0	1,903	18	76	47,319	49,881
Scott Valley Subunit								
Lake County	1,903	27	21	2,178	658	136	55,664	60,587
Mendocino County	0	0	0	0	0	0	739	739
	1,903	27	21	2,178	658	136	56,403	61,326
Upper Lake Subunit								
Lake County	3,227	47	389	4,014	535	318	91,644	100,174
Mendocino County	0	0	0	0	0	0	326	326
	3,227	47	389	4,014	535	318	91,970	100,500
TOTAL	18,174	770	1,701	27,779	3,176	4,100	916,352	972,052
SUMMARY:								
Colusa County	442	0	0	2,335	0	0	263,210	65,989
Lake County	16,931	757	1,701	22,689	3,074	3,446	601,817	650,415
Mendocino County	0	0	0	0	0	0	2,045	2,045
Napa County	801	13	0	2,726	59	652	227,410	231,661
Yolo County	0	0	0	29	43	0	21,870	21,942
TOTAL	18,174	770	1,701	27,779	3,176	4,100	916,352	972,052

*Includes surface areas of Clear Lake - 39,320 acres and Lake Berryessa - 19,130 acres

TABLE 9

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	[a] Misc.	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
							BEAR CREEK SUBUNIT									
D12N/5W-17E1	E. Barbettini			15										15		15
D13N/6W-6A1	Marion Ghiselin			7[b]										7		7
D15N/5W-19A1 D15N/5W-19F1	York Hill Reservoir York Hill Ditch			125										125		125
D16N/5W-33K1	Stephen R. and Marion S. Jones													0	68	68
Lands irrigated by surface water		0	0	147	0	0	0	0	0	0	0	0	0	147	68	215
Lands irrigated by ground water		72	0	177	3	0	0	0	0	0	0	0	0	252	0	252
Total Bear Creek Subunit		72	0	324	3	0	0	0	0	0	0	0	0	399	68	467
							BERRYESSA SUBUNIT									
D7N/3W-8R1	Lake La Verne			10										10		10
D7N/3W-16H1	Moskowite Reservoir	9	10	104[c]										123		123
D7N/3W-17D1	J. Roy, Don and Clint Pridmore			16										16		16
D7N/4W-12J1	Napa Valley Ranch Club			3										3	2	5
D7N/4W-25H1	Manuel and Gladys Dutra			9										9		9

a Includes irrigated grain, safflower, and vineyard lands.
b Received partial irrigation.
c 70 acres received partial irrigation.

TABLE 9 (Continued)
IRRIGATED LANDS IN
PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960
(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc [a]	Total lands irrigated	Idle or follow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
BERRYESSA SUBUNIT (Continued)																
D8N/4W-26J1	Walter and Alma Priest	58												58		58
D10N/4W-9M1	M. D. Walker			7[b]										7		7
Lands irrigated by surface water		67	10	149	0	0	0	0	0	0	0	0	0	226	2	228
Lands irrigated by ground water		0	0	10	0	0	0	0	0	0	0	0	0	10	0	10
Total Berryessa Subunit		67	10	159	0	0	0	0	0	0	0	0	0	236	2	238
BIG VALLEY SUBUNIT																
D11N/8W-3N1	Cobb Mountain Water Company			7										7		7
D11N/8W-4H1	Richard and Elna Newfield			35										35		35
D12N/8W-5B1	Godfrey L. Hildebrand, Estate of			19										19		19
D12N/8W-5D1	Geneva V. McIntire L. H. McIntire			76										76		76
D12N/8W-5G1	Godfrey L. Hildebrand, Estate of			48										48		48
D12N/8W-5M1	Geneva V. McIntire L. H. McIntire			17										17		17

a Includes irrigated grain, safflower, and vineyard lands.
b Received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
					BIG VALLEY SUBUNIT (Continued)											
D12N/8W-9K1	Vic McGloin			2										2	1	3
D12N/8W-33R1	Richard and Elna Newfield			7										7		7
D12N/9W-10H1 D12N/9W-10F1	Melvin W. and Wilda M. Wood	9	8	21										38		38
D13N/9W-2C1	Marion Gopcevic, Estate of							4			5			9		9
D13N/9W-23B1	Ross Peoples													0	13	13
D13N/9W-25P1	Sidney M. Dunk			9 (6)						6*				15		15
D13N/9W-27K1	Wayne S. Myers	3		17				6		8				34		34
D13N/9W-27Q1	Michael F. Burton			21										21		21
D13N/9W-27Q2	Juan Erquiaga Wallace G. Price Elliott and Rika V. Redd	5		30										35		35
D13N/9W-33H1	Edith S. Allen			6										6		6
D13N/9W-34H1	Gene E. and Dorothy Howerton Elmer H. Hutchings			3										3	10	13
D13N/10W-14N1	William H. and Hilda K. Graham			30										30		30

*, ( ) Indicates an intercrop. The asterisk * refers to a primary intercrop which is included in the totals. The parenthesis ( ) refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc. [a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc					
							BIG VALLEY SUBUNIT (Continued)									
D13N/10W-23M1	William H. and Hilda K. Graham	13		12										25	3	28
D13N/10W-26A1	William H. and Hilda K. Graham			13										13		13
D14N/9W-31A1	Sheldon T. Deacon			11										11		11
D14N/9W-31A2	Sheldon T. Deacon			5										5		5
D14N/9W-31D1	Glen Keithly			60				9						69		69
D14N/9W-32A1	Francis Morrison		7[d]	23[d]				15[d]		20[d]				65		65
D14N/9W-32D1	Sheldon T. Deacon			17										17		17
D14N/9W-32E1	Waldo Shaul			15										15		15
D14N/9W-32F1	United States Bureau of Indian Affairs							15						15		15
D14N/9W-32F2	United States Bureau of Indian Affairs													0	38	38
D14N/9W-33D1	James L. Morrison							34*					(34)	34		34
D14N/9W-33G1	Francis A. Manning			16										16		16
D14N/9W-33H1	S. J. Blower							14 (19)		19*				33		33

*, ( ) Indicates an intercrop. The asterisk * refers to a primary intercrop which is included in the totals. The parenthesis ( ) refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

d Received supplemental supply from a well.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
BIG VALLEY SUBUNIT (Continued)																
D14N/9W-33K1	John Medina							26[d]						26		26
D14N/9W-34A1	Glen and R. G. Keithly			105[d]				28[d]		4[d]				137		137
D14N/9W-34D1	Glen and R. G. Keithly			49										49		49
D14N/9W-35D1	Marion Gopcevic, Estate of							326[d]	120[d]	3[d]				449	6	455
D14N/10W-22H1 D14N/10W-22H2	Lakeport Municipal Waterworks								8					8		8
D14N/10W-25J1	Charlotte Pinkham, Estate of												20	20		20
Lands irrigated by surface water		30	15	674	0	0	0	477	128	60	5	0	20	1,409	71	1,480
Secondary intercrop		(0)	(0)	(6)	(0)	(0)	(0)	(19)	(0)	(0)	(0)	(0)	(34)			
Lands irrigated by ground water		303	39	942	5	0	0	3,610[j]	150	870[k]	62	13	10	6,004	93	6,097
Secondary intercrop		(4)	(0)	(2)	(6)	(0)	(0)	(82)	(55)	(0)	(0)	(0)	(0)			
Total Big Valley Subunit		333	54	1,616	5	0	0	4,087[j]	278	930[k]	67	13	30	7,413	164	7,577
Secondary intercrop		(4)	(0)	(8)	(6)	(0)	(0)	(101)	(55)	(0)	(0)	(0)	(34)			
INDIAN VALLEY SUBUNIT																
D14N/6W-4F1	Indian Valley Association													0	33	33
D14N/7W-14J1	E. Horton			19										19		19
D14N/7W-24N1	Ernest J. Ford			21										21		21

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

d Received supplemental supply from a well.

j Includes 22 acres intercropped with prunes.

k Includes 127 acres intercropped with alfalfa, corn, pasture, pears and prunes.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
						INDIAN VALLEY SUBUNIT (Continued)										
D15N/6W-9C1	Cliff Garrison			8[b]										8		8
D15N/6W-16N1	Indian Valley Association													0	31	31
D15N/6W-28D1 D15N/6W-28E1	Indian Valley Association													0	77	77
Lands irrigated by surface water		0	0	48	0	0	0	0	0	0	0	0	0	48	141	189
Lands irrigated by ground water		0	0	56	0	0	0	0	0	0	0	0	0	56	0	56
Total Indian Valley Subunit		0	0	104	0	0	0	0	0	0	0	0	0	104	141	245
						LOWER LAKE SUBUNIT										
D12N/7W-1C1	George Schmidt	8		27[e] (15)						15*				50		50
D12N/7W-1D1	Clarence L. Bonham Abe Brookins George Schmidt	14[d] (5)		47[d]						5*[d]				66		66
D12N/7W-1D2	George Sullivan	5												5		5
D12N/7W-2B1	Charles O. Kimrey												15	15		15
D12N/7W-15P1	David L. Moskowite			10										10		10
D12N/7W-16P1	Julia, Lily, Mary, and Teresa Perini			10									6	16		16
D12N/7W-22Q1	Arthur LaRocque									15				15		15
D12N/7W-23D1	Josephine Lovisone									29				29		29

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

b Received partial irrigation.

d Received supplemental supply from a well.

e 14 acres received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
						LOWER LAKE SUBUNIT (Continued)										
D12N/7W-24H1	O. H. Hodges			4										4		4
D12N/7W-27B1	Frank M. Cooley													0	3	3
D12N/7W-27C1	Frank M. Cooley			14										14	3	17
D12N/8W-4B1	Kim Canavarro	4[d]												4		4
D12N/8W-4B2	Paul Shively													0	35	35
D12N/8W-13Q1	Laurence G. and Hazel Warner			32[d]										32		32
D13N/7W-34R1	Charles M., William and Mora Anderson	34											5	39		39
D13N/8W-10M1	Pipe Fitters and Plumbers Union									22				22		22
D13N/8W-10P1	Pipe Fitters and Plumbers Union									16				16		16
D13N/8W-15D1	Konocti Bay Resort									6				6		6
D13N/8W-16R1	Max J. Galatoire			(7)							7*			7		7
D13N/8W-22D1	S. F. Stockum									12				12		12
D14N/7W-19J1	T. Apline			8										8		8
D14N/7W-31H1	Chelton Hill													0	45	45

*,( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

d Received supplemental supply from a well.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
					LOWER LAKE SUBUNIT (Continued)											
D14N/7W-32F1	Mrs. Worthen Bradley			55										55		55
D14N/8W-28C1	B. C. Jones	7		40[f]										47		47
Lands irrigated by surface water		72	0	247	0	0	0	0	0	120	7	0	26	472	86	558
Secondary intercrop		(5)	(0)	(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			
Lands irrigated by ground water		80	0	440	0	0	0	0	0	878	0	0	0	1,398	0	1,398
Total Lower Lake Subunit		152	0	687	0	0	0	0	0	998	7	0	26	1,870	86	1,956
Total secondary intercrop		(5)	(0)	(22)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			
					MIDDLETOWN SUBUNIT											
D10N/6W-8C1	Earle P. Hanson													0	13	13
D10N/6W-9J1 D11N/6W-34K1	Detert Lake McCreary Lake	70		585	29									684		684
D10N/6W-31C1 D10N/6W-31F1	N. B. Livermore and Soos							11						11		11
D10N/7W-3K1	Otto Sempell													0	8	8
D10N/7W-4D1	Hazen A. Dennis		6											6		6
D10N/7W-10B1	Harold Beasley			43 (7)						7*				50	6	56
D10N/7W-10G1	James Agapoff			3										3		3

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

f 22 acres received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
MIDDLETOWN SUBUNIT (Continued)																
D10N/7W-10H1	Joe R. Ogando	8[b]		4[b]										12		12
D10N/7W-10J1	C. R. and Eleanor C. Vines			(19)						19*[g]				19		19
D10N/7W-10P1	Frank Cross			11[b]										11		11
D10N/7W-10R1	C. R. and Eleanor C. Vines			(7)						7*[b]				7		7
D11N/6W-19F1	Barbara Trimble	11		54 (11)							11*[b]			76		76
D11N/6W-20B1	Frank Hartman	26		20										46		46
D11N/6W-20.1	Eric W. and Ruth V. Johnson	38[d]								13[d]				51		51
D11N/6W-20Q1	Frank Hartman													0	45	45
D11N/6W-28D1	Mary A. Bowcher			9										9		9
D11N/6W-28G1	Mary A. Bowcher			17										17		17
D11N/6W-28H1	Mary A. Bowcher			70										70		70
D11N/6W-28H2	Mary A. Bowcher			7										7		7
D11N/6W-29M1	George P. Belcher			45[d]										45		45
D11N/7W-26P1	L. J. Skaggs			61										61		61

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

b Received partial irrigation

d Received supplemental supply from a well.

g 13 acres received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
						MIDDLETOWN SUBUNIT (Continued)										
D11N/7W-26P2	Ralph K. Davies			68										68		68
D11N/7W-29N1	Ralph K. Davies							159						159		159
D11N/7W-34Q1	Ralph K. Davies		39[d]	81[d]										120		120
D11N/8W-23B1	Robert A. and Selina F. Badger			(-)							1*			5		5
Lands irrigated by surface water		153	45	1,082	29	0	0	170	0	46	12	0	0	1,537	72	1,609
Secondary intercrop		(0)	(0)	(45)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			
Lands irrigated by ground water		20	58	281	0	0	0	4	0	31	4	2	0	400	0	400
Total Middletown Subunit		173	103	1,363	29	0	0	174	0	77	16	2	0	1,937	72	2,009
Total Secondary Intercrop		(0)	(0)	(45)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			
						POPE VALLEY SUBUNIT										
D8N/5W-11G1	Human Relations Research Foundation	28		29										57		57
D8N/5W-12E1	Manuel Abreu			2										2		2
D9N/4W-31L1	Y. M. Hardin	12												12		12
D9N/5W-3Q1	Dick Week													0	7	7
D9N/5W-8E1 D9N/5W-5N1	Joe Stern			48										48		48

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

d Received supplemental supply from a well.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
POPE VALLEY SUBUNIT (Continued)																
D9N/5W-9K1 D9N/5W-9K2 D9N/5W-9Q1	C. C. Glidden	16												16		16
D9N/5W-10E1 D9N/5W-10N1 D9N/5W-10Q1	Dick Week													0	82	82
D9N/5W-10H1	Dick Week													0	5	5
D9N/5W-11L1 D9N/5W-11Q1	James Conner	26												26		26
D9N/5W-18C1	Norman K. Blanchard									10				10		10
D9N/5W-22K1	Lawrence and Thelma E. Groteguth													0	2	2
D9N/5W-23Q1	Emil Usibelli		53				41							94		94
D9N/5W-27K1	Emil Usibelli						21							21		21
D9N/5W-36A1	Jack L. and Babette J. Keppel													0	23	23
D9N/6W-1P1	George B. and Ruth V. Heibel			22[b]										22		22
D9N/6W-11B1	Sarah Joan, Katherine M. and John A. Burns													0	6	6

a Includes irrigated grain, safflower, and vineyard lands.

b Received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
						POPE VALLEY SUBUNIT (Continued)										
D9N/6W-12G1	Duvall Lake			23										23		23
D9N/6W-13J1	Norman K. Blanchard									29				29		29
D10N/6W-36Q1	W. D. Hammond			5[b]										5		5
Lands irrigated by surface water		82	53	129	0	0	62	0	0	39	0	0	0	365	125	490
Lands irrigated by ground water		0	0	35	0	0	0	0	0	0	0	0	0	35	27	62
Total Pope Valley Subunit		82	53	164	0	0	62	0	0	39	0	0	0	400	152	552
						SCOTT VALLEY SUBUNIT										
D13N/11W-1P1	Margaret F. Dorst			4										4		4
D13N/11W-1R1	Margaret F. Dorst			47										47		47
D13N/11W-12H1	Peters Reservoir			24										24		24
D14N/10W-2P1	James A. Leithead		3		10									13		13
D14N/10W-3B1	Hidden Lake			18										18		18
D14N/10W-11D1	Kenneth Rickabaugh							33[d]						33		33
D14N/10W-11F1 D14N/10W-11G1	Gene Burger Burger Lake	5		10				17						32		32
D14N/10W-15J1	G. A. Curtis							14		2				16		16

a Includes irrigated grain, safflower, and vineyard lands.
b Received partial irrigation.
d Received supplemental supply from a well.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Posture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
					SCOTT VALLEY SUBUNIT (Continued)											
D14N/10W-22H1 D14N/10W-22H2	Lakeport Municipal Waterworks			6				42	4	9				61		61
D15N/10W-8Q1	Leland R. and Myrtle Tyrer				7									7		7
D15N/10W-8R1	George A. Sandage				13									13		13
D15N/10W-17B1	Elwood and Eetelle Pickrell				8									8		8
D15N/10W-17C1	Clyde M. Cash	3		11										14		14
D15N/10W-20D1	Herbert A. and Ruth D. Robertson													0	8	8
D15N/10W-20L1	Raymond V. and Ruth J. Miller		6	11										17		17
D15N/10W-20Q1	James H. Wattenburger			14										14		14
D15N/10W-29B1	P. H. D. Ranch			9										9		9
Lands irrigated by surface water		8	9	162	30	0	0	106	4	11	0	0	0	330	8	338
Lands irrigated by ground water		67	14	284	14	91	0	940[m]	10	126[n]	0	9	0	1,555	10	1,565
Secondary intercrop		(0)	(4)	(0)	(0)	(57)	(0)	(11)	(0)	(0)	(0)	(0)	(0)			
Total Scott Valley Subunit		75	23	446	44	91	0	1,046[m]	14	137[n]	0	9	0	1,885	18	1,903
Secondary intercrop		(0)	(4)	(0)	(0)	(57)	(0)	(11)	(0)	(0)	(0)	(0)	(0)			

*,( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

m Includes 57 acres intercropped with hops and pears.

n Includes 15 acres intercropped with pears and sudan.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
						UPPER LAKE SUBUNIT										
D15N/9W-5N1	Paul Alexander	18		24				9						51		51
D15N/9W-6C1	John Strickfaden				5							3		8		8
D15N/9W-6D1	Jim Brown Lincoln Dennison Wilferd Mitchell Robert Snow Rodney Snow John Strickfaden Elery Tony Sam Tony													0	15	15
D15N/9W-7D1	Donald M. Griner			8[d]										8		8
D15N/9W-7P1	Donald M. Griner	73		36						3				112		112
D15N/9W-17D1	G. A. Wetmore			21										21		21
D15N/9W-17E1	Herbert Peterson	10												10		10
D15N/9W-17E2	Rex Pierson			21[h]										21		21
D15N/9W-17M1	J. F. Guntly			25							7			32		32
D15N/9W-17M1	John M. and Anna R. Pespisi	6		7							3			16		16
D15N/9W-18E1	Audrey Weger	46		16										62		62
D15N/9W-18M1	Lulu C. Jones	18		148										166		166

a Includes irrigated grain, safflower, and vineyard lands.
d Received supplemental supply from a well.
h 10 acres received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
							UPPER LAKE SUBUNIT (Continued)									
D15N/9W-18H1	S. A. Billingsley Roland Hanson	6		65[i]										71		71
D15N/9W-18L1	Audrey Weger			48										48		48
D15N/9W-18Q1	B. F. Modglin													0	41	41
D15N/9W-20C1	Mark Mendenhall	24												24		24
D15N/9W-20C2	B. F. Modglin			28										28		28
D15N/9W-20F1	R. J. Giovanini	5												5		5
D15N/9W-20F2	Edward J. Tolman			22										22		22
D15N/9W-20L1	Earl Proett			34										34		34
D15N/9W-20L2	Edward J. Tolman			17 (8)						8*				25	2	27
D15N/9W-20M1	B. F. Modglin			44										44		44
D15N/9W-20P1	Modglin and Knudson Construction Co.	45		18										63		63
D15N/9W-28F1	Modglin and Knudson Construction Co.			90								3		93		93
D15N/9W-28H1	Jim and Margaret Morrison									17				17		17

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

i 16 acres received partial irrigation.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
							UPPER LAKE SUBUN[illegible] (Continued)									
D15N/9W-29B1	Modglin and Knudson Construction Co.	9												9		9
D15N/9W-29B2	B. F. Modglin													0	8	8
D15N/9W-29C1	Modglin and Knudson Construction Co.	103												103		103
D15N/9W-29C2	Reclamation District No. 2070													0	37	37
D15N/9W-29J1	Modglin and Knudson Construction Co.			40										40		40
D15N/9W-31H1	Allen W. Roberts			7				52		4				63		63
D15N/9W-32D1	Duane W. Bradley			(15)						35*	(16)			35		35
D15N/9W-32D2	Albert J. and Pauline P. Amell			8							6			14		14
D15N/9W-36E1	Jane K. Barnes									35				35		35
D15/10W-1R1	E. M. Seely							34						34		34
D15N/10W-9H1	Mark and Hilda Mendenhall			14[d]										14		14
D15N/10W-11Q1	Tule Lake Ranch						15					96		111		111
D15N/10W-12P1	Louis F. Rose							16						16		16

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

d Received supplemental supply from a well.

TABLE 9 (Continued)

IRRIGATED LANDS IN

PUTAH - CACHE CREEKS HYDROGRAPHIC UNIT, 1960

(In acres)

Diversion location	Diversion name or owner	Forage			Field			Orchards				Truck	Misc.[a]	Total lands irrigated	Idle or fallow	Total
		Alfalfa	Sudan	Pasture	Corn	Hops	Sorghums	Pears	Prunes	Walnuts	Misc.					
							UPPER LAKE SUBUNIT (Continued)									
D15N/10W-12Q1	Louis F. Rose							11						11		11
D15N/10W-12R1	Lake County Cannery													0	47	47
D15N/10W-13B1	Don Madia			9								1		10		10
D16N/9W-31M1	Waverly J. and Kate Slattery							21						21		21
D16N/9W-32P1	Virgil Wade									43				43		43
Lands irrigated by surface water		363	0	750	5	0	15	143	0	145	16	103	0	1,540	150	1,690
Secondary intercrop		(0)	(0)	(23)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)			
Lands irrigated by ground water		116	61	262	83	0	114	368	0	501[p]	0	20	6	1,531	6	1,537
Secondary intercrop		(50)	(0)	(0)	(20)	(0)	(26)	(23)	(0)	(0)	(0)	(0)	(74)			
Total Upper Lake Subunit		479	61	1,012	88	0	129	511	0	646[p]	16	123	6	3,071	156	3,227
Secondary intercrop		(50)	(0)	(23)	(20)	(0)	(26)	(23)	(0)	(0)	(16)	(0)	(74)			
SUMMARY:																
Lands irrigated by surface water:		775	132	3,388	64	0	77	896	132	421	40	103	46	6,074	723	6,797
Lands irrigated by ground water:		658	172	2,487	105	91	114	4,922	160	2,406	66	44	16	11,241	136	11,377
Total Putah-Cache Creeks Hydrographic Unit		1,433	304	5,875	169	91	191	5,818	292	2,827	106	147	62	17,315	859	18,174

*, ( ) Indicates an intercrop. The asterisk refers to a primary intercrop which is included in the totals. The parenthesis refers to the secondary intercrop which is not included in the totals.

a Includes irrigated grain, safflower, and vineyard lands.

p Includes 193 acres intercropped with alfalfa, corn, pears, sorghums and miscellaneous crops.

CHAPTER IV. LAND CLASSIFICATION

Calculations of future water requirements will be based in a large part on a classification of lands with regard to their potential for irrigated agricultural and recreational development. The results of such a land classification survey in the Putah-Cache Creeks Hydrographic Unit are presented in this chapter.

Lands were not classified in this survey with respect to their potential for future urban development. The use of land for urban purposes is more closely related to the population density at any given time than to its physical characteristics. It is planned to defer the designation of these lands until estimates of population and related economic studies are made in connection with determinations of future water requirements.

The former Division of Water Resources made a reconnaissance classification of lands of the State, which was reported in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California," dated June 1955. A more detailed land classification survey was performed by the department and reported in Department of Water Resources Bulletin No. 58, "Northeastern Counties Investigation," 1957. The Lake, Colusa, and Yolo Counties portions of the Putah-Cache Creeks Hydrographic Unit were included in Bulletin No. 58.

The land classification survey for this report uses these previous land classification surveys as a base, however, additional data on classification of recreational lands have been included along with some modifications to the irrigable agricultural lands and a remapping of the present urban lands. Because of construction of Monticello Dam, the lands within the high-water line of Lake Berryessa have been deleted from the irrigable and urban classifications as reported in prior surveys.

Methods and Procedures

The general methods and procedures used in field mapping and tabulation of information were essentially the same as those described for the land use survey in Chapter III. An example of land classification delineations on an aerial photograph is shown on page 117. The standards used in the classification of lands are given in detail in Table 11, "Land Classification Standards," page 123.

Major Categories of Land Classes

The lands mapped are grouped into four major categories: (1) irrigable lands, (2) present urban lands, (3) recreational lands, and (4) miscellaneous lands. Results of the land classification survey are shown on Plate 3, "Classification of Lands," Sheets 1 through 19. The areas of each classification are listed in Table 10, "Classification of Lands in Putah-Cache Creeks Hydrographic Unit," page 122.

Irrigable Lands

Irrigable lands are grouped in appropriate classifications according to their suitability for development under irrigated agriculture and their crop adaptability. Presently irrigated lands are included within these classifications, but urban lands and recreational lands were not classed as to irrigability. The time element, with respect to when the lands might be developed, did not enter into the determination, except that suitability for irrigated agriculture was necessarily considered in light of the present agricultural technology.

Example of Land Classification
Delineated on Aerial Photograph

(See Table 11, page 123 for symbol explanation)

There are many factors which influence the suitability of land for irrigation development. Since soil characteristics and the physiography of the landscape are the most stable of these factors, they were the only ones considered in the survey in classifying lands as to their irrigability. The characteristics of the soil were established by examination of road cuts, ditch banks, and the material from test holes, together with observations of the type and density of native vegetation and crops. Representative slopes throughout the area were measured with a clinometer. Other aspects, such as the economic factors related to the production and marketing of climatically adapted crops, the location of lands with respect to a water supply, and climatic conditions, were not considered in the basic classification. These latter factors are very important in estimating the nature of future cropping patterns and practices and will be given due consideration when estimates are made of future water requirements.

Urban Lands

It is recognized that future urban expansion will encroach upon some of the irrigable lands. The location and extent of this type of development is a function of many variables. Because this land classification survey is an inventory of relatively unchanging physical conditions, no attempt was made to locate the areas of future urban encroachment. Therefore, only those lands devoted to urban uses in 1960 were classified as "urban" lands.

Recreational Lands

Present trends indicate an expanding rate of use and demand for recreational facilities throughout the State. In view of these trends and the ever-increasing population, it is recognized that there will be a demand for substantial land areas for recreational purposes. This is particularly true of

the mountainous regions where development is expanding rather rapidly at the present time.

Generally speaking, all mountainous lands are suitable for some recreational use such as hunting, fishing, and similar outdoor activities. However, for purposes of this survey, lands classified for recreational uses were limited to those which were, at the time of the survey, or may in the future be used intensively for permanent and summer home tracts, camp and trailer sites, and parks outside of urban areas. These are lands requiring intensive water service.

Primary considerations for classification of home tracts and camp and trailer sites are such physical factors as soil depths, slope, and rockiness; such aesthetic values as view, nearness to lakes and streams, or density and type of forest canopy suitable for the respective uses, and the plans of United States and state forest officials. An important factor in the location of camp and trailer sites was the availability of a water supply, but isolation from existing roads did not influence site selection.

The only parks in the unit at the time of the survey were the Clear Lake State Park and the Lake County Park located about 1.5 miles northeast of Kelseyville on the southern shore of Clear Lake.

Miscellaneous Lands

Lands which failed to meet the requirements previously described in this chapter are herein called "Miscellaneous lands" and appear in Table 10 as "F" lands, "Vm" lands, and "N" lands.

The presently forested lands or lands best suited for forest management, which are otherwise irrigable, were classed as "F" lands. Lands which were designated in the land use survey as "marshlands," were classified as "Vm" lands, except those marshland areas considered to have a recreation potential due to the

Spanish Flat,
Marina on
Lake Berryessa

Clear Lake at
Konocti Bay

current progress of reclamation practices. The lands mapped as "N" include all lands which failed to meet the requirements of the above classes. Included are the surface areas of Clear Lake, 39,320 acres, and Lake Berryessa, 19,130 acres.

TABLE 10

CLASSIFICATION OF LANDS IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

(In acres)

Subunit and County	Irrigable agricultural lands																Present urban lands	Recreational lands					Miscellaneous lands			Total
	Smooth lying							Gently sloping				Steeply sloping				Total										
	V	Vh	Vl	Vp	Vr	Vpr	Vw	H	Hp	Hr	Hpr	M	Mp	Mr	Mpr		UO	PP	RC	RT	RR	Total	Vm	F	**N	
Bear Creek																										
Colusa County	2,128	0	0	5,457	32	40	0	3,540	690	0	131	115	373	0	0	12,506	0	0	2	0	0	2	0	482	52,797	65,787
Lake County	752	0	197	0	0	0	0	916	788	0	0	7	559	0	7	3,226	17	0	22	0	7	29	0	546	52,486	56,304
Yolo County	2	0	0	0	0	0	0	86	394	14	18	5	241	6	0	766	43	0	0	0	0	0	0	171	20,962	21,942
Berryessa																										
Napa County	466	0	0	0	0	0	0	1,041	1,442	0	0	213	730	0	0	3,892	41	4	444	2,892	17,295	20,635	0	1,699	127,153	153,420
Big Valley																										
Lake County	12,970	0	150	233	0	0	84	4,793	2,754	122	144	1,415	2,202	644	111	25,622	430	628	196	186	9,182	10,192	21	1,056	51,272	88,593
Mendocino County	0	0	0	0	0	0	0	33	16	0	0	0	0	0	0	49	0	0	0	0	0	0	0	16	915	980
Indian Valley																										
Colusa County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202	202
Lake County	2,806	0	1,312	224	0	168	2	1,088	1,519	0	240	143	626	0	359	8,487	12	0	0	198	111	309	0	2,859	115,477	127,144
Lower Lake																										
Lake County	3,539	23	0	2,001	76	0	161	4,757	2,369	747	210	2,685	2,053	710	823	20,154	1,236	53	272	68	14,534	14,927	13	470	48,625	85,425
Middletown																										
Lake County	5,319	1,814	240	3,590	0	0	29	1,500	5,968	237	798	383	1,711	32	607	22,228	186	0	344	8	6,257	6,609	15	3,378	99,701	132,117
Napa County	263	176	7	99	0	0	0	94	2,259	0	138	0	246	0	0	3,282	0	277	2	5	274	558	0	989	23,602	28,431
Pope Valley																										
Lake County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	65	71
Napa County	4,094	712	15	362	14	0	13	833	4,452	0	166	592	1,235	0	31	12,519	18	56	29	3	112	200	0	1,205	35,868	49,810
Scott Valley																										
Lake County	3,590	0	37	0	0	0	19	1,144	407	0	0	622	559	0	208	6,586	658	0	105	39	611	755	23	646	51,919	60,587
Mendocino County	0	0	0	0	0	0	0	3	5	0	0	0	0	0	0	8	0	0	0	0	0	0	0	10	721	739
Upper Lake																										
Lake County	7,731	0	263	7	0	0	41	939	686	0	84	31	1,161	0	389	11,332	535	0	163	297	3,672	4,132	215	1,262	82,698	100,174
Mendocino County	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	306	326
Colusa County	2,128	0	0	5,457	32	40	0	3,540	690	0	131	115	373	0	0	12,506	0	0	2	0	0	2	0	482	52,999	65,989
Lake County	36,707	1,837	2,199	6,055	76	168	336*	15,137	14,491	1,106	1,476	5,286	8,871	1,386	2,504	97,635	3,074	681	1,102	796	34,374	36,953	287	10,223	502,243	650,415
Mendocino County	0	0	0	0	0	0	0	36	21	0	0	0	0	0	0	57	0	0	0	0	0	0	0	46	1,942	2,045
Napa County	4,823	888	22	461	14	0	13	1,968	8,153	0	304	805	2,211	0	31	19,693	59	337	475	2,900	17,681	21,393	0	3,893	186,023	231,661
Yolo County	2	0	0	0	0	0	0	86	394	14	18	5	241	6	0	766	43	0	0	0	0	0	0	171	20,962	21,942
TOTAL	43,660	2,725	2,221	11,973	122	208	349*	20,767	23,749	1,120	1,929	6,211	11,696	1,392	2,535	130,657	3,176	1,018	1,579	3,696	52,055	58,348	287	14,815	764,769	972,052

*Total includes 13 acres of Mw and 31 acres of Hw in Lake County.
**Includes surface areas of Clear Lake - 39,320 acres and Lake Berryessa - 19,130 acres.

TABLE 11

LAND CLASSIFICATION STANDARDS

Symbol :	Characteristics
	Irrigable Lands
V	These lands are level or slightly sloping and vary from smooth to hummocky or gently undulating relief. The maximum allowable slope is 6 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are limiting. The soils have medium to deep effective root zones, are permeable throughout, and free of salinity, alkalinity, rock, or other conditions limiting crop adaptability of the land. These lands are suitable for all climatically adapted crops.
H	These are lands with greater slope and/or relief than those of the V class. They vary from smooth to moderately rolling or undulating relief. The maximum allowable slope is 20 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are limiting. The soils are permeable, with medium to deep effective root zones, and are suitable for the production of all climatically adapted crops. The only limitation is that imposed by topographic conditions.
M	These are lands with greater slope and/or relief than those of the H class. They vary from smooth to steeply rolling or undulating relief. The maximum allowable slope is 30 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are limiting. The soils are permeable, with medium to deep effective root zones, and are suitable for the production of all climatically adapted crops. The only limitation is that imposed by topographic conditions.
The foregoing may be modified, as conditions warrant, by use of one or more of the following symbols.	
w	Indicates the presence of a high-water table, which in effect limits the present crop adaptability of these lands to pasture crops. Drainage and a change in irrigation practice would be required to affect the crop adaptability.
s	Indicates the presence of an excess of soluble salts or exchangeable sodium in slight amounts, which limits the present adaptability of these lands to crops tolerant to such conditions. The presence of salts within the soil generally indicates poor drainage and a medium to high-water table. Reclamation of these lands will involve drainage and the application of small amounts of amendments and some additional water over and above crop requirements in order to leach out the harmful salts.

TABLE 11 (continued)

Symbol :	Characteristics
ss	Indicates the presence of an excess of soluble salts or exchangeable sodium in sufficient quantity to require the application of moderate amounts of amendments and some additional water over and above crop requirements in order to effect reclamation.
sa	Indicates the presence of an excess of soluble salts or exchangeable sodium in sufficient quantity to require the application of large amounts of amendments and some additional water over and above crop requirements in order to effect reclamation.
h	Indicates very fine textures, which in general make these lands best suited for the production of shallow-rooted crops.
l	Indicates fairly coarse textures and low moisture-holding capacities, which in general make these lands unsuited for the production of shallow-rooted crops because of the frequency of irrigations required to supply the water needs of such crops.
p	Indicates shallow depth of the effective root zone, which in general limits use of these lands to shallow-rooted crops.
r	Indicates the presence of rock on the surface or within the plow zone in sufficient quantity to prevent use of the land for cultivated crops.
-(L)	Indicates ground cover varying from a light to moderately dense growth of low brush through a low density growth of medium height trees.
-(M)	Indicates ground cover varying from a high density growth of low brush through a moderately dense growth of medium height to tall trees.
-(H)	Indicates ground cover varying from a high density growth of medium height trees through a very dense growth of large trees.
-2, -4 -6, -8	Number indicates in feet the average difference between highs and lows due to microrelief.
-B	Indicates low-lying basin and seep areas.

Urban and Recreational Lands

UD	The total area of cities, towns, and small communities presently used for residential, commercial, recreational, and industrial purposes.

TABLE 11 (continued)

Symbol :	Characteristics
SR	Existing and potential suburban residential areas which have a low population density. These lands are further subdivided into either a high or low water using category. This is indicated by a number in the symbol, i.e., SR-1 includes those lands where it is expected the entire area will be utilized for lawns, gardens, small orchards, etc., and has a high water use. SR-2 indicates lands where a large percentage of the area is expected to be nonwater using, hence an area of low water use. All the SR lands are also classed according to the four major topographic classes used for the classification of irrigable lands, i.e., V, H, M, and N.
RR	Existing and potential permanent and summer home tracts within a primarily recreational area. The estimated number of houses, under conditions of full development, is indicated by a number in the symbol, i.e., RR-3 is suitable for three houses per acre.
RC	Existing and potential commercial areas which occur within a primarily recreational area and which include motels, resorts, hotels, stores, etc.
RT	Existing and potential camp and trailer sites within a primarily recreational area.
PP	Existing racetracks, fairgrounds, and private, city, county, state, and federal parks.

Miscellaneous Lands

F	Presently forested lands, or lands subject to forest management, which meet the requirements for irrigable land but which, because of climatic conditions and physiographic position, are better suited for timber production or some type of forest management program rather than for irrigated agriculture.
Va	Smooth lying valley lands which are affected by such heavy concentrations of salts that further detailed studies would be required to determine the feasibility of reclaiming these lands for irrigated agriculture.
Vm	Swamp and marsh lands which usually support a heavy growth of phreatophytes and are covered by water most of the time.
N	Includes all lands which fail to meet the requirements of the above classes.

CHAPTER V. SUMMARY

The Putah-Cache Creeks Hydrographic Unit covers the watersheds of Putah Creek above Monticello Dam, and of Cache Creek above the gage "Cache Creek above Rumsey," including the watersheds of the tributaries to Clear Lake. It includes 1,016 square miles of Lake County, 362 square miles of Napa County, 103 square miles of Colusa County, 35 square miles of Yolo County, and 3 square miles of Mendocino County.

Valley and foothill lands constitute about 130,657 acres or 14 percent of the total area in the unit. Agriculture is the largest single commercial enterprise in the unit with 27,779 acres or 57 percent of the agricultural lands dry-farmed, and 18,174 acres or 38 percent irrigated. The major irrigated crops are pears and walnuts. Historically, mineral production and agriculture were the basic industries of the unit but in later years, mineral production declined in importance and has been replaced by water-associated recreational activities centered around Clear Lake and Lake Berryessa.

Water Use

The water rights in Putah-Cache Creeks Hydrographic Unit are primarily based on riparian rights or on appropriative rights established after the enactment of the Water Commission Act in 1914. The remainder are unknown or appropriative rights established prior to 1914 by merely diverting and using the water. One of the largest diversions in the unit falling under the appropriative rights established prior to 1914 is the Clear Lake diversion owned by Clear Lake Water Company.

As of January 1, 1963, a total of 183 active applications to appropriate water in the unit were on file with the State Water Rights Board; of these, 154 had received a permit or a license, 12 were pending, and 17 were incomplete.

Of the 271 surface water diversions located, 88 representative diversions were measured during 1960. The primary use and amount diverted are summarized below.

Primary use	Diversions located	Diversions measured	Amount measured (acre-feet)
Irrigation	205	77	12,122
Stockwatering	24	0	0
Domestic	20	2	110
Municipal	10	9	1,092
Recreation	7	0	0
Industrial	3	0	0
Mining	2	0	0
TOTALS	271	88	13,324

The above tabulation of irrigation diversions located includes Monticello Dam of the U. S. Bureau of Reclamation and Clear Lake Impounding Dam of the Clear Lake Water Company. These were the two major diversion systems located in the unit, but were not included in the measurement records because the primary use of the water was outside the unit. The total release through Monticello Dam in 1960 was 95,545 acre-feet and the maximum storage reached in Clear Lake above zero on the Rumsey gage was 278,000 acre-feet on April 5-9, 1960.

The total consumptive use of applied surface and ground water for irrigated agriculture in the unit during 1960 is estimated to have been 29,926

acre-feet. The estimated consumptive use values for domestic and municipal, stockwatering, recreation, industrial, mining, and other uses are not included in this report because of insufficient data.

Land Use

Areas of the 1960 land uses within the Putah-Cache Creeks Hydrographic Unit are summarized below and presented pictorially in Figure 1, page 131.

Use	Area in acres	
Agricultural lands		
Lands irrigated in 1960	17,315	
Lands normally irrigated but idle or fallow in 1960	859	
Meadowlands	770	
Marshlands	1,701	
Dry-farmed lands	27,779	
Total agricultural lands		48,424
Recreational lands		4,100
Urban lands		3,176
Native vegetation		
Water surfaces of Clear Lake and Lake Berryessa	58,450	
Other lands	857,902	
Total native vegetation		916,352
TOTAL AREA OF UNIT		972,052

Land Classification

The land classification surveys reported in Department of Water Resources Bulletins Nos. 58, 90, and 99 were used in this investigation, with additional data on classification of recreational lands, some minor modifications to the irrigable agricultural lands, and a resurvey of present urban lands. The results of these surveys are summarized below and presented pictorially in Figure 2, page 131.

Classification	Area in acres
Irrigable agricultural lands	130,657
Recreational lands	58,348
Present urban lands	3,176
Miscellaneous lands	
Irrigable forest management lands	14,815
Water surfaces of Clear Lake and Lake Berryessa	58,450
Other lands (includes marshlands)	706,606
TOTAL AREA OF UNIT	972,052

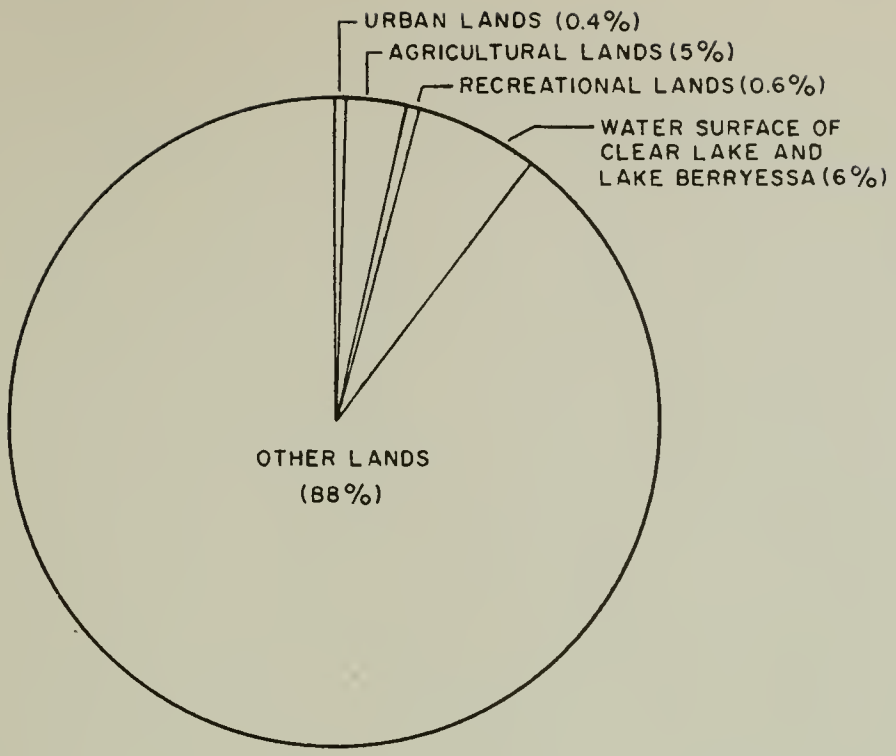


Figure 1

1960 LAND USE

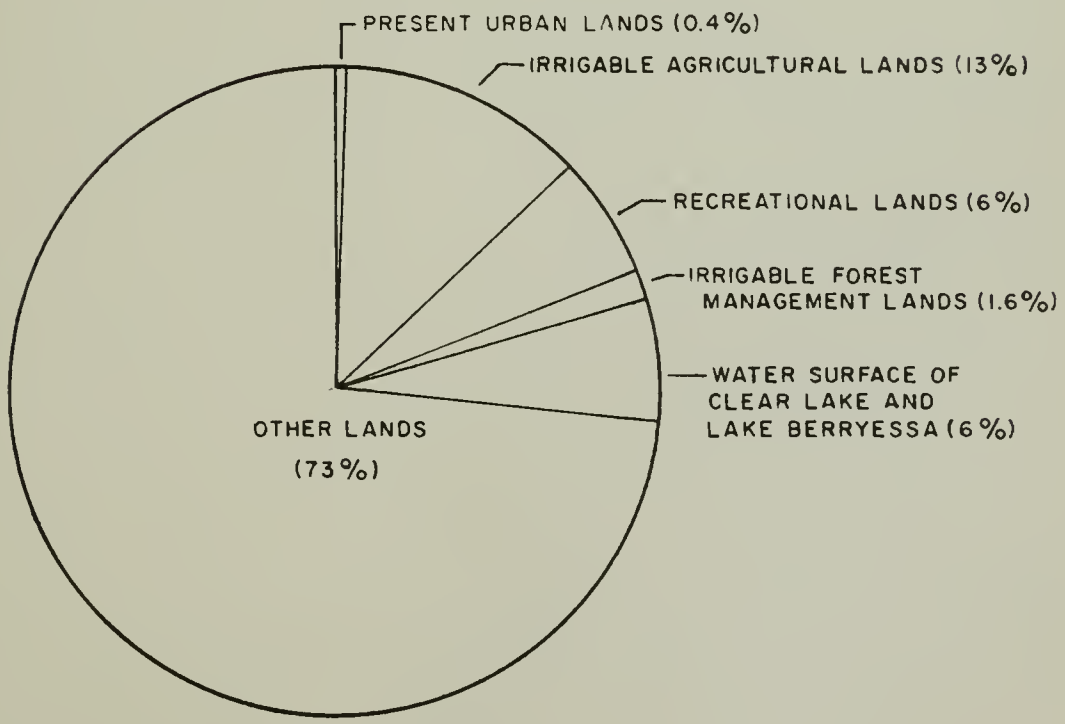


Figure 2

CLASSIFICATION OF LANDS

APPENDIX A

STATEWIDE WATER RESOURCES AND WATER REQUIREMENTS PROGRAM

APPENDIX A

STATEWIDE WATER RESOURCES AND WATER REQUIREMENTS PROGRAM

California's major water problem today is that of development and delivery of supplemental water supplies to meet increasing water requirements throughout the State. The problem involves (1) the regulation of seasonal and cyclic fluctuation of streamflow to meet demand schedules in the areas of origin, and (2) the transmission of regulated surplus flows over long distances to areas of deficiency. The development and long distance transfer of water is currently accomplished by such major facilities as the Federal Central Valley Project and the Colorado River Aqueduct of The Metropolitan Water District of Southern California. However, such development and transfer will be considerably broadened in scope by the State Water Facilities.

Consumptive water requirements of the State on a basin-wide basis were estimated in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California," June 1955. However, to provide for local water needs while considering specific export projects, more detailed information must be made available on present and projected future water requirements of the areas in which the projects are to be built. This will necessitate the considerably more detailed collection and analysis of data on hydrology, land use and land capability, and economics.

Recognizing that additional information is needed if the water needs of areas of origin are to be adequately protected in large-scale water development projects, the 1956 Legislature authorized an investigation to determine the water resources and water requirements of the respective watersheds in the State. The authorization is contained in Chapter 61, Statutes of 1956, as amended by Chapter 2025, Statutes of 1959. This legislation is codified in Section 232 of the Water Code as follows:

"232. The Legislature finds and declares that in providing for the full development and utilization of the water resources of this State it is necessary to obtain for consideration by the Legislature and the people, information as to the water which can be made available for exportation from the watersheds in which it originates without depriving those watersheds of water necessary for beneficial uses therein. To this end, the department is authorized and directed to conduct investigations and hearings and to prepare findings therefrom and to report thereon to the Legislature at the earliest possible date with respect to the following matters:

(a) The boundaries of the respective watersheds of the State and the quantities of water originating therein;

(b) The quantities of water reasonably required for ultimate beneficial use in the respective watersheds;

(c) The quantities of water, if any, available for export from the respective watersheds;

(d) The areas which can be served by the water available for export from each watershed; and

(e) The present use of water within each watershed together with the apparent claim of water right attaching thereto, excluding individual uses of water involving diversions of small quantities which, in the judgment of the Director of Water Resources, are insufficient in the aggregate to materially affect the quantitative determinations included in the report.

Before adopting any findings which are reported to the Legislature, the department shall hold public hearings after reasonable notice, at which all interested persons may be heard."

For purposes of this inventory, the State has been divided into 12 major hydrographic areas. These areas, in turn, have been subdivided into hydrographic units generally comprising watersheds of individual rivers. Basic data on present water uses, together with the apparent claim of water right attached thereto, present land uses, history of land and water uses, and the classification of lands will be presented separately for each hydrographic unit in this series of reports on land and water use. This bulletin, No. 94-13, "Land and Water Use in Putah-Cache Creeks Hydrographic Unit," is the 13th of a series reporting the results of these surveys.

At a future date, estimates will be made of quantities of water reasonably required for future beneficial uses in each watershed. The quantity of water potentially available for export from each watershed will be determined after allowances are made for the satisfaction of the local requirements and prior rights to divert water to other areas. For those watersheds in which no exportable water is available, the water supply deficiency will be determined. These estimates will be published as they become available.

The calculations of future water requirements will be based, in part, on predicted future land uses derived from land classification surveys, economic studies, population forecasts, industrial and agricultural development, and recreational needs. Agricultural water requirements will be based on unit water use by the various predicted crop types; urban and recreational requirements on per capita water use values; fish and wildlife requirements on minimum streamflow needed or on water demands for wildlife area; and industrial water requirements on measured water deliveries to various types and sizes of industries now existing. In forecasting future industrial development, water quality problems will be given full consideration.

Water resources will be determined from records of all stream gaging stations, including new stations which were established for this and other investigations of the department. The new stations were generally constructed on streams which originate in the smaller watersheds for which runoff data are necessary but for which no data have been available.

APPENDIX B

REPORTS ON RELATED INVESTIGATIONS AND OTHER REFERENCES

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REPORTS ON RELATED INVESTIGATIONS
AND OTHER REFERENCES

California State Chamber of Commerce Research Department. "Economic Survey Series." 1900-1960.

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----"Mercury in the Mayacmas District." California Journal of Mines and Geology. Volume 42-No. 3. July 1946.

----"Mines and Mineral Resources of Lake County, California." California Journal of Mines and Geology, Volume 43-No. 1. January 1947.

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Wilsey and Ham. "Cache Creek Basin Recreation Study." Wilsey and Ham, Consulting Engineers. 1958.

APPENDIX C

LEGAL CONSIDERATIONS

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LEGAL CONSIDERATIONS

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APPENDIX C

LEGAL CONSIDERATIONS

There are set forth in the following paragraphs brief general statements with respect to the California law of water rights to supplement and to provide a background for information on water rights contained in Chapter II. Also included is a tabulation of currently active applications to appropriate water within Yuba-Bear Rivers Hydrographic Unit filed with the State Water Rights Board.

California Water Rights

In California, water rights convey only the right to use water. Until absolute possession of water is acquired by some artificial means, no one owns water. However, the owner of water rights is entitled to enjoy them without interference by other users who have rights which are inferior to his.

Five kinds of water rights are recognized in California. These are riparian, overlying, appropriative, prescriptive, and pueblo. Riparian rights attach to surface water and water flowing in known and definite subterranean channels, while overlying rights attach only to underground water. Appropriative and prescriptive rights may be acquired in either surface or underground waters. Pueblo rights are now exercised in California only by the Cities of Los Angeles and San Diego, each of which has a paramount right to satisfy the former Mexican pueblo from which each sprang.

All water rights, both to surface and to underground water, are subject to the doctrine of reasonable beneficial use expressed in

Section 3 of Article 14 of the California Constitution, and Water Code Sections 100 and 101. This doctrine limits water rights to the quantity of water reasonably required for beneficial use and prohibits waste, unreasonable use, and unreasonable methods of use or diversion.

Riparian Rights

A riparian right entitles the landowner to take water directly from a natural watercourse for use on lands which border or have frontage on the watercourse. However, the rights of the owner of riparian land are limited to the reasonable beneficial use of the natural flow of water which passes his land. Riparian rights pass with the title to the land, unless expressly reserved or excepted from the interests transferred, and are not gained by use or lost by mere nonuse. Although the land must be contiguous to the watercourse, the length of the frontage is not determinative of the rights; a large tract with a small frontage on a stream may be riparian to the stream, but the original grant determines the character of the land, and only the smallest contiguous tract held under a single title retains riparian rights.

A riparian owner has no right to any specified amount of the water of a stream as against other riparian owners. He has rights only to a reasonable share from the stream--a correlative right which he shares mutually with other riparian owners. In the event of insufficient water for all, the available supply must be apportioned, except that an upper riparian owner may take the whole supply if necessary for domestic use. As against appropriators, the riparian owner has the paramount right to all the water of the stream which he can put to reasonable

beneficial use, but that is the extent of his rights, and the appropriator can take the surplus.

Riparian rights do not authorize use of water on nonriparian land, nor do they permit the seasonal storage of water. Neither do they prevent temporary appropriation by others of water not presently needed for use on riparian land.

A parcel of land becomes nonriparian when severed from land bordering the stream, unless the riparian rights are reserved for the severed parcel by the grantor. Riparian rights may be destroyed when purportedly transferred apart from the land by grant, contract, or condemnation, and may be impaired or lost through prescription.

Overlying Rights

Owners of lands overlying a common underground water supply have the right to withdraw water for reasonable beneficial use of their overlying lands. Such overlying rights are analogous to riparian rights, in that both are based on ownership of land, and the rights of each overlying owner are mutual and correlative to the rights of all other owners. In the case of insufficient water to fully supply the requirements of all, the available supply must be equitably apportioned.

Overlying rights do not include use of water on nonoverlying land. However, surplus water not presently required for beneficial use on overlying land, and which may be withdrawn without creating an overdraft on the groundwater supply, may be appropriated for use on nonoverlying land, but the overlying rights are paramount and all appropriative rights are subject to the future requirements of overlying land.

Appropriative Rights

An appropriation of water is any taking of water from other than riparian or overlying uses, whether such taking is from the underground by wells or from surface stream by direct diversion or storage. An appropriator, in the legal sense, is one who initially takes water without possessing rights which are based on the ownership of land. As between appropriators, the one first in this is first in right. A prior appropriator may take all the water he needs up to the full amount to which he is entitled before a later appropriator may take any.

Normally, appropriative rights are inferior to riparian rights. An exception to this is the case of an appropriation of water diverted from streams flowing through vacant public lands before the riparian lands were withdrawn from the domain of the United States. The appropriative diversions or the lands they serve may be either upstream or downstream from the riparian lands. Any water not needed for the reasonable beneficial uses of those having prior rights may properly be appropriated.

No formal or statutory procedure is or ever has been prescribed or required in this state for those who take water by means of wells from underground percolating waters or underground basins. An appropriative right to take surplus water from such sources is acquired by extracting such water from the underground and applying it to beneficial uses.

Provided the development and application to use are completed with reasonable diligence, the priority of the right as against another appropriator related back to the first substantial act toward putting the water to use or to the date of application. Until 1872, water flowing in natural streams was appropriated by taking the water.

Sections 1410 through 1422 of the Civil Code, enacted in 1872, established a permissive procedure for perfecting an appropriation of surface water. Provision was made for posting a notice of appropriation at the proposed point of diversion and recording a copy with the county recorder. If the statutory procedure were followed and the appropriation completed with due diligence, priority related back to the date of posting; otherwise, priority was established only when the water was put to beneficial use.

Since the effective date of the Water Commission Act of 1913, December 19, 1914, appropriation of surface water and water in subterranean streams flowing in known and definite channels has been by compliance with required statutory procedure. An appropriation of such water now can be made in accordance with the provisions of Part 2, Division 2 of the Water Code (Water Code Sections 1200 to 1801). An application to appropriate unappropriated water must be filed with the State Water Rights Board. If the application is approved, a permit is issued authorizing the appropriation. When the appropriation has been completed, an inspection is made and a license is issued, to the extent of beneficial use, provided the terms and conditions of the permit have been fulfilled. The priority of a permit or license relates back to the date of the appropriation.

A right to appropriate water may be lost either by abandonment or by continuous nonuse. To constitute abandonment, there must be concurrence of act and intent, wherein possession is relinquished with no intent to resume it for a beneficial use. Abandonment is, therefore, always voluntary and factual. In the case of an appropriation

initiated prior to 1914, continuous nonuse for a period of five years results in the loss of appropriative water rights. In the case of appropriative rights acquired pursuant to the Water Commission Act or the Water Code, continuous nonuse for a period of only three years may result in loss of such rights.

Where ground water and surface water are interconnected, one acting as a tributary to the other, both are treated as part of a common supply and users of water from either source are entitled to protection from substantial injury as a result of use by others of water from the other source. Thus, an owner of land riparian to a stream may have his right to the use of water protected against impairment by an appropriator of percolating ground water tributary to the stream and required for the maintenance and support of its flow. Likewise, where water from a stream percolates to a groundwater basin or stratum, the owner of land overlying the groundwater supply may be protected from an appropriation of water from the stream if this causes a substantial impairment of the groundwater supply. As between riparian use of surface water and overlying use of groundwater tributary to the stream, a sharing of the available water supply on the basis of reasonable beneficial use should be made.

Prescriptive Rights

It is possible to appropriate surface or groundwater which is presently needed by others to satisfy riparian, overlying, or prior appropriative rights. Such appropriations may ripen into prescriptive rights where the use is actual, open and notorious, hostile and adverse to the original owners, continuous and uninterrupted for the statutory

period of five years, made under claim of right, and with payment of taxes whenever such have been levied on the water rights. Absence of any of these essentials precludes the acquisition of prescriptive water rights.

Prescription thus requires that where the rightful owner for a period of five years, either knows or should know of the adverse taking and fails to take any physical or legal steps to interrupt such taking. An absolute right is acquired to a fixed amount of water by prescription, the quantity being determined by beneficial use, irrespective of the needs or demands of the injured riparian, overlying, or prior appropriative user. However, present use is the measure of the prescriptive right, and future needs cannot be included.

Riparian rights, overlying rights, appropriative rights, and prescriptive rights may be lost or diminished by prescription. While there is sufficient water flowing in a stream to supply the wants of all parties, the use of the water by anyone does not deprive the others of their water supply and, hence, is not an invasion of their rights. The same principle applies to a downstream diversion of water as against the rights of an upstream riparian landowner or prior appropriator. At times when the safe yield of a groundwater basin exceeds the needs of overlying landowners and appropriators, their prior rights are not invaded by a later appropriative taking of water from the underground supply. The later appropriation becomes adverse only when the groundwater basin is overdrawn; that is, when the annual draft exceeds the safe annual yield. Although neither an overlying owner nor a prior appropriator may prevent a taking of surplus water, either the owner or

the appropriator may institute legal proceedings to safeguard the supply once a surplus ceases to exist, and may enjoin any additional use beyond the point of safe yield. Since prescriptive rights can only be acquired to nonsurplus water, these rights cannot ordinarily be acquired against the future needs of riparian or overlying owners.

The prior appropriator, lower riparian, or overlying owner may protect his rights for his present needs against an adverse appropriator by actually taking the needed water before the five-year period has run, or by the aid of the courts in the form of a declaratory judgement or injunction within the five-year period.

Determination of Water Rights

Under provisions of the Water Code, actions involving determination of rights to the use of water brought before either state or federal courts may, at the court's discretion, be referred to the State Water Rights Board. Under provisions of Water Code Section 2000, the court may appoint the board to referee "any or all issues involved in the suit," or under Section 2001, it may limit the reference to "investigations of and report upon any or all physical facts involved". This reference procedure may be followed in suits involving either surface or groundwaters, or both.

An alternative procedure is available for adjudication of rights to the use of water of streams, lakes, and other bodies of water, but the method excludes the determination of rights to take water from an underground supply other than from a subterranean stream flowing through known and definite channels. Water Code Sections 2500 to 2900, inclusive, authorize the initiation of such proceedings.

Litigation Concerning Local Water Rights

Water rights in the Putah-Cache Creeks Hydrographic Unit are based primarily upon appropriative or riparian status, and have frequently been the subject of controversy and litigation. Two major suits have occurred in the Cache Creek Basin. The first was "Gopcevic vs Yolo Water and Power Company" in 1920, Mendocino County Superior Court, recorded in Volume 60 of Deeds, page 49, of Lake County Official Records. The second was "Bemerly Decree" in 1940, Yolo County Superior Court Case No 8812, of Yolo County Official Records. Copies of both of these decrees are included in Appendix D.

TABLE C-1

APPLICATIONS TO APPROPRIATE WATER IN PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT

(Filed with State Water Rights Board as of January 1, 1963)

Application number and Status*	Date filed	Present owner	DWR ** diversion location	Source	Location of point of diversion						Amount	Period of diversion	Purpose
					¼	¼	Sec.	Tp.	R.	B & M			
26 L-36	5/14/15	Nicholas W. Ebbitts & Raymond Johnson		Alder Creek	NW	SW	9	11N	8W	MD	13,500 GPD	May 1-Oct 31	Domestic
533 L-88	12/13/16	Society of the Divine Word		Baluins Canyon	SW	SW	32	10N	5W	MD	0.125 CFS	Jun 15-Oct 30	Irrigation
1036 L-89	8/ 2/13	Alfred & Agnes Hennessey, Vernon L. & Virginia L Prather, John & Karnig Ahramjian		Tributary to Copsey Creek	SW	SE	22	12N	7W	MD	0.175 CFS	May 1-Sep 30	Irrigation
1178 L-87	2/13/19	Harold W. & Bertha K. Kerrison		Tributary to Soda Creek	SE	SE	25	8N	4W	MD	0.075 CFS	Apr 1-Oct 1	Domestic, Irrigation
1472 L-91	10/ 4/19	Sallie M. Bolster		Unamed Spring	SW	SW	4	12N	7W	MD	0.0125 CFS	Jan 1-Dec 31	Domestic, Irrigation
3069 L-2141	10/ 7/22	Investment Operating Corporation	10N/6W-8J1	Bucksnort Creek	SW		9	10N	6W	MD	5.35 CFS 1,100 AFA	Apr 1-Jun 15 Sep 15-May 1	Irrigation
3797 L-918	1/14/24	Mary A. Bowcher	11N/6W-28H1	Putah Creek	NE	SE	28	11N	6W	MD	0.95 CFS	May 15-Oct 31	Irrigation
3858 L-475	2/19/24	U.S. Mendocino National Forest		Grouse Springs	NW	SE	36	17N	10W	MD	0.013 CFS	May 15-Dec 15	Domestic, Stockwatering
4379 L-1015	12/16/24	Robert Ramsey		Harbin Creek	SW NW	NE SE	20 20	11N 11N	7W 7W	MD MD	0.14 CFS	Jun 1-Sep 30	Stockwatering, Irrigation
6904 L-1606	3/ 9/31	Waverly J. & Kate M. Slattery	16N/9W-31M1	Middle Creek	NW	SW	31	16N	9W	MD	0.21 CFS	May 1-Oct 1	Irrigation,
6927 L-1392	3/31/31	E.J. & Julia W. Schuette & P.V. Pendrocini		Unnameo Springs Tributary to Spruce Canyon	NW	SW	11	15N	11W	MD	0.10 CFS	May 15-Oct 1	Irrig., Domestic
7108 L-2052	10/30/31	Edith Y. Phillips		Spring Tributary to Clear Lake	SW	SE	32	15N	8W	MD	0.01 CFS	Jan 1-Dec 31	Domestic
7733 L-1979	11/ 3/33	Leonard J. & Alice M. Kuhn		Spring tributary to Bartlett Creek	SE	SW	7	15N	7W	MD	1,000 GPD	May 1-Nov 1	Domestic
8135 L-1778	10/18/34	State of California Division of Highways		Spring tributary to Clear Lake	Lot	2	35	14N	8W	MD	1,000 GPD	Jan 1-Dec 31	Recreational
9574 L-2947	5/ 4/39	Franklin F. Offner	9N/6W-12G1	Tributary to Pope Creek	SW	NE	12	9N	6W	MD	150 AFA	Nov 1-Apr 30	Irrigation

* P - Permit number of application approved. L - License number of right confirmed. Inc. - Application not yet complete. Pend. - Application complete but not yet approved.

** Diversion of 10 acre-feet or more per year located by Department of Water Resources. "D" precedes diversion location numbers throughout report.

TABLE C-1 (Continued)
APPLICATIONS TO APPROPRIATE WATER IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT
(Filed with State Water Rights Board as of January 1, 1963)

Application number and Status*	Date filed	Present owner	DWR ** diversion location	Source	Location of point of diversion						Amount	Period of diversion	Purpose
					¼	¼	Sec.	Tp.	R.	B & M			
9695 L-2633	8/11/39	ADOLPH C. HAUG		HAUG CREEK	SE	NW	19	9N	5W	MD	0.41 CFS	JAN 1-DEC 31	DOMESTIC, STOCKWATERING, POWER, FIRE PROTECTION, IRRIGATION
10398 L-2923	3/12/42	U.S. MENDOCINO NATIONAL FOREST		SPRING TRIBUTARY TO MIDDLE CREEK	NW	SE	3	16N	10W	MD	1,000 GPD	JAN 1-DEC 31	DOMESTIC
10955 L-3163	1/13/45	FRANK W. & WILLIAM F. STEPHENS		SPRING TRIBUTARY TO NORTH FORK CACHE CREEK	SW	NE	5	14N	6W	MD	8,500 GPD	JAN 1-DEC 31	DOMESTIC, STOCKWATERING
11139 P-1067	10/29/45	U.S. BUREAU OF RECLAMATION	8N/2W-29G1	PUTAH CREEK	SW	NE	29	8N	2W	MD	1,000,000AFA	NOV 1-MAY 31	DOMESTIC, MUNICIPAL, INDUSTRIAL, RECREATIONAL, IRRIGATION
11236 L-4446	12/11/45	DICK WEEK	9N/5W-10E1	STREAM TRIBUTARY TO POPE CREEK	SW	NW	10	9N	5W	MD	180 AFA	NOV 1-JUL 1	STOCKWATERING, IRRIGATION
11389 PEND.	5/ 3/46	COUNTY OF YOLO		CACHE CREEK NORTH FORK CACHE CREEK	NE SW	SW SW	12 4	12N 14N	4W 6W	MD MD	1,000 CFS	OCT 1-JUN 30	IRRIGATION
11499 L-3239	8/ 6/46	C. A. CANTRELL	15N/10W-29B1	SCOTTS CREEK	NW	NE	29	15N	10W	MD	0.39 CFS	MAY 1-OCT 30	IRRIGATION
11766 L-3669	3/10/47	GEORGE S. & JOYCE M. ROBERTSON		UNNAMED SPRING	NW	SE	17	15N	10W	MD	550 GPD	JAN 1-DEC 31	DOMESTIC
11073 L-4661	5/12/47	CLARA L. MIRABILE		CAPELL CREEK	NW	NW	33	7N	3W	MD	0.5 AFA	APR 1-JUL 1	DOMESTIC, STOCKWATERING
11079 L-3666	5/14/47	WILBUR I. & INEZ LARMER		TRIBUTARY TO COLD CREEK	SW	SE	6	12N	8W	MD	775 GPD	JAN 1-DEC 31	DOMESTIC
11930 L-4327	6/10/47	GEORGE MOSKOWITE	7N/3W-16H1	SPRING TRIBUTARY TO CAPELL CREEK	SE	NE	16	7N	3W	MD	200 AFA	NOV 1-MAR 1	IRRIGATION
12389 PEND.	3/ 8/48	BIG VALLEY SOIL CONSERVATION DISTRICT		KELSEY CREEK	NE	SE	34	13N	9W	MD	100 CFS	OCT 1-APR 1	DOMESTIC, IRRIGATION
12578 P-10658	6/30/48	U.S. BUREAU OF RECLAMATION	8N/2W-29G1	PUTAH CREEK	SW	NE	29	8N	2W	MD	900 CFS	FEB 1-NOV 15	DOMESTIC, IRRIGATION
12596 L-3863	7/16/48	NORMAN K. & DOROTHY BLANCHARD		TRIBUTARY TO POPE CREEK	NW	NE	18	9N	5W	MD	8 AFA	FEB 1-JUN 30	DOMESTIC, IRRIGATION

* P - Permit number of application approved. L - License number of right confirmed. Inc. - Application not yet complete. Pend. - Application complete but not yet approved.
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TABLE C-1 (Continued)
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PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT
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Application number and Status*	Date filed	Present owner	DWR ** diversion location	Source	Location of point of diversion						Amount	Period of diversion	Purpose
					¼	¼	Sec.	Tp.	R.	B & M			
12716 P-10659	9/27/48	U.S. Bureau of Reclamation	8N/2W-29G1	Putah Creek	SW	NE	29	8N	2W	MD	116 cfs	Jan 1-Dec 31	Municipal, Industrial, Domestic, Recreational
12851 L-3576	12/ 9/48	Richard Week	9N/5W-10H1	Tributary to Pope Creek	SE	NE	10	9N	5W	MD	41 afa	Nov 1-May 15	Stockwatering, Irrigation
13053 P-7764	4/25/49	Lee & Mary E. Eakle	9N/5W-36A1	Hardin Creek	NW NE	SW SE	30 25	9N 9N	4W 5W	MD MD	0.1 cfs 15 afa	May 15-Sep 15	Irrigation
13237 L-4593	7/18/49	Matt J. Keegan, Jr.	9N/5W-19A1	Tributary to Bear Creek Doyle Canyon Creek	NE SW	NE NE	19 19	15N 15N	5W 5W	MD MD	320 afa	Nov 1-May 31	Domestic, Stockwatering, Irrigation
13341 L-3595	9/ 8/49	Robert F. & Virginia W. Kaufman		Washington Creek	Lot	14	2	9N	6W	MD	6,000 gpd	Mar 1-Nov 1	Domestic
13543 L-4053	1/18/50	Fred & Lucille Hurlbut		Tributary to Pope Creek	NE	SE	18	9N	5W	MD	7.5 afa	Nov 1-Mar 31	Domestic
13578 L-4584	2/10/50	V.M. Smith		Briggs Creek	NE	SW	20	10N	7W	MD	0.67 cfs	Jan 1-Dec 31	Fish Culture, Fire Protection
13597 L-4464	-/ -/50	California Leisure Lands, Inc.	9N/5W-9K1	Pope Creek Tributary to Pope Creek	SW NW	SE SE	9 9	9N 9N	5W 5W	MD MD	65 afa	Nov 1-Apr 1	Stockwatering, Irrigation
13672 L-6510	4/ 6/50	George Moskowite	7N/3W-16H1	Tributary to Capell Creek	SE	NE	16	7N	3W	MD	100 afa	Nov 1-Apr 1	Irrigation
13711 L-5300	4/28/50	Human Relations Research Founoation	8N/5W-11G1	Maxwell Creek	NE	SE	12	8N	5W	MD	183 afa	Nov 1-Apr 1	Irrigation
13730 L-5445	4/28/50	Donald F. Ross		Tributary to Burton Creek	NW	SW	20	9N	5W	MD	2 afa	Nov 1-Feb 1	Stockwatering, Recreational, Irrigation
13771 P-8861	6/ 5/50	Harry I. & Nancy A. Kelly	10N/6W-8C1	Tributary to Bucksnort Creek	NE	NW	8	10N	6 W	MD	148 afa	Oct 1-Apr 1	Domestic, Irrigation
13801 L-5877	6/19/50	George B. & Ruth V. Heibel	9N/6W-1P1	Aetna Creek	SW	SW	1	9N	6W	MD	25 afa	Dec 1-Apr 1	Stockwatering, Irrigation
13834 P-9015	7/ 5/50	Oakland Area Girl Scouts Inc.		Troutdale Creek	NW	SW	36	10N	7W	MD	3 cfs	Jan 1-Dec 31	Domestic

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					¼	¼	Sec.	Tp.	R.	B & M			
13915 L-5826	8/23/50	MAYRENE GRAY	12N/6W-19R1	TRIBUTARY TO ASBILL CREEK	SE	SE	19	12N	6W	MD	14.4 AFA	DEC 1-APR 1	DOMESTIC, FISH CULTURE, IRRIGATION
13918 P-8446	8/24/50	WALTER & ALMA PRIEST	8N/4W-23M1	SODA CREEK	NW	SW	23	8N	4W	MD	200 AFA	DEC 1-APR 1	IRRIGATION
14024 L-4447	10/27/50	DICK WEEK	9N/5W-10E1	TRIBUTARY TO POPE CREEK	SW	NW	10	9N	5W	MD	150 AFA	NOV 1-JULY 1	IRRIGATION, STOCKWATERING
14391 P-8938	7/16/51	GORDON R. & B. H. KIRKPATRICK	9N/5W-19A1	BURTON CREEK	NE	NE	19	9N	5W	MD	0.3 CFS	APR 1-OCT 1	IRRIGATION, DOMESTIC, MISC.
14392 L-5435	7/16/51	GORDON R. KIRKPATRICK	9N/5W-20D1	TRIBUTARY TO BURTON CREEK	NW	NW	20	9N	5W	MD	16 AFA	NOV 1-MAR 31	IRRIGATION, DOMESTIC, MISC.
14681 L-5092	2/15/52	C.F. MAIER		UNNAMED STREAM	SE	SE	20	9N	5W	MD	3.5 AFA	NOV 1-JUN 1	RECREATIONAL
14784 L-5247	4/29/52	ALVA A. DIMREEN		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	2,500 GPD	JAN 1-DEC 31	DOMESTIC, FIRE PROTECTION
14787 L-5600	4/30/52	SARAH MCINNIS		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	4,500 GPD	JAN 1-DEC 31	DOMESTIC, FIRE PROTECTION
14846 L-5676	6/10/52	HERBERT J. SMITH		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	1,200 GPD	JAN 1-DEC 31	DOMESTIC
14974 L-5446	8/15/52	DONALD F. ROSS		TRIBUTARY TO BURTON CREEK	NW SW	SW SW	20 20	9N 9N	5W 5W	MD MD	5,000 GPD	MAY 15-SEP 30	IRRIGATION, DOMESTIC
14995 L-5339	8/26/52	T.L. NEIL		TRIBUTARY TO BURTON CREEK	NE	SE	20	9N	5W	MD	10 AFA	NOV 1-JUL 1	DOMESTIC
15038 L-5382	10/ 2/52	U.S. ARMY CORPS OF ENGINEERS		PUTAH CREEK	SW	NW	24	11N	6W	MD	0.035 CFS	JAN 1-DEC 31	DOMESTIC, INDUSTRIAL
15164 P-9563	1/21/53	DICK WEEK	9N/5W-10E1	TRIBUTARY TO POPE CREEK	SW	NW	10	9N	5W	MD	180 AFA	NOV 1-JUL 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING, FISH CULTURE

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15196 L-5985	2/13/53	JOE STERN	9N/5W-8E1	TRIBUTARY TO POPE CREEK	SW	NW	8	9N	5W	MD	75 AFA	OCT 1-JUN 15	IRRIGATION, STOCKWATERING
15258 L-6645	3/30/53	JOHN A., KATHARINE M. & SARAH J. BURNS	9N/6W-11B1	TRIBUTARY TO SWARTZ CREEK	NW	NE	11	9N	6W	MD	46.5 AFA	NOV 1-MAY 15	IRRIGATION
15281 L-5806	4/ 6/53	H. L. PAGE	9N/5W-21P1	TRIBUTARY TO BURTON CREEK	SE	SW	21	9N	5W	MD	42 AFA	OCT 1-MAY 1	DOMESTIC, RECREATIONAL
15312 P-9565	4/23/53	ESTATE OF WILLIAM MOSKOWITE		TRIBUTARY TO CAPELL CREEK	SW	SW	34	7N	3W	MD	150 AFA	NOV 1-JUL 1	IRRIGATION
15321 L-5555	4/29/53	J. ROY PRIDMORE	7N/3W-8R1	TRIBUTARY TO CAPELL CREEK	SE	SE	8	7N	3W	MD	57 AFA	DEC 1-MAY 1	IRRIGATION
15323 L-6015	4/30/53	W.D. HAMMOND	9N/6W-1A1	POTASSIOM CREEK	NE	NE	1	9N	6W	MD	25 AFA	OCT 1-MAY 1	IRRIGATION,
			10N/6W-36Q1	POTASSIUM CREEK	NW	NE	1	9N	6W	MD	30 AFA	OCT 1-MAY 1	RECREATIONAL
15421 L-6026	7/21/53	GEORGE MOSKOWITE	7N/3W-16H1	TRIBUTARY TO CAPELL CREEK	SE	NE	16	7N	3W	MD	125 AFA	NOV 1-MAY 30	RECREATIONAL, IRRIGATION
15568 L-5467	10/ 6/53	WALTER D. & ALMA PRIEST	8N/4W-26J1	UNNAMED SPRING	SE	NW	25	8N	4W	MD	1,000 GPD	MAR 1-DEC 31	IRRIGATION,
				UNNAMED STREAM	SE	NE	26	8N	4W	MD	0.05 CFS	MAR 1-NOV 1	DOMESTIC,
				SODA CREEK	SE	SE	26	8N	4W	MD	0.43 CFS	MAR 1-NOV 1	STOCKWATERING
15609 P-9769	11/10/53	GEORGE R. ANDERSON		PUTAH CREEK UNDERFLOW	NE	SE	33	11N	7W	MD	0.34 CFS	JAN 1-DEC 31	IRRIGATION, DOMESTIC, STOCKWATERING
15697 P-10088	1/21/54	EDITH S., EVELYN B. & WALTER I. ALLEN	13N/9W-33H1	TRIBUTARY TO KELSEY CREEK	SE	NE	33	13N	9W	MD	100 AFA	OCT 1-MAY 1	IRRIGATION
15706 L-6334	1/28/54	INVESTMENT OPERATING CORPORATION	11N/6W-34K1	BUCKSNORT CREEK	NE	SE	34	11N	6W	MD	1,222 AFA	OCT 1-JUN 1	IRRIGATION, STOCKWATERING
15784 L-5333	3/18/54	GEORGE P. BELCHER	11N/6W-29N1	CRAZY CREEK	SW	SW	29	11N	6W	MD	0.67 CFS	APR 1-OCT 31	IRRIGATION, STOCKWATERING
15934 P-9930	6/29/54	CALIFORNIA LEISURE LANDS INC.	9N/5W-9K2	UNNAMED STREAM	NW	SE	9	9N	5W	MD	40 AFA	NOV 1-APR 1	IRRIGATION
				POPE CREEK	SW	SE	9	9N	5W	MD	0.88 CFS	APR 1-JUL 1	
15975 P-12849	8/ 2/54	YOLO COUNTY FC & WCD		NORTH FORK CACHE CREEK	NW	NW	9	14N	6W	MD	400,000 AFA	OCT 1-JUN 30	IRRIGATION,
				CACHE CREEK	NW	SE	19	13N	5W	MD	780,000 AFA		DOMESTIC, MISC
				CACHE CREEK	NE	SW	3	12N	4W	MD	260,000 AFA		
				CACHE CREEK	NE	SW	12	12N	4W	MD	1,000 CFS		

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15976 P-12850	8/ 2/54	YOLO COUNTY FC & WCD		NORTH FORK CACHE CREEK CACHE CREEK CACHE CREEK CACHE CREEK	NW NW NE NE	NW SE SW SW	9 19 3 12	14N 13N 12N 12N	6W 5W 4W 4W	MD MD MD MD	400,000 AFA 780,000 AFA 260,000 AFA 1,000 CFS	OCT 1-JUN 30	MUNICIPAL, MISC.
16003 L-5078	8/19/54	S. REES & MARION S. JONES	16N/5W-33K1	TRIBUTARY TO BEAR CREEK	SW	NE	33	16N	5W	MD	150 AFA	DEC 1-FEB 1	STOCKWATERING, IRRIGATION
16114 L-5120	10/25/54	RALPH K. DAVIES	11R/7W-29N1	SPRING TRIBUTARY TO PUTAH CREEK	SE	NW	29	11N	7W	MD	500 GPD	JAN 1-DEC 31	DOMESTIC
16257 L-6524	3/ 7/55	GEORGE & ANNA M. HAUG		UNNAMED STREAM	SE	NE	29	9N	5W	MD	9.4 AFA	NOV 1-MAY 1	IRRIGATION, RECREATIONAL
16267 P-11241	3/10/55	DICK WEEK	9N/5W-10E1	UNNAMED STREAM	SW	NW	10	9N	5W	MD	150 AFA	NOV 1-JUL 1	IRRIGATION, DOMESTIC, STOCKWATERING
16268 L-6046	3/10/55	DICK & ANN WEEK	9N/5W-3Q1	UNNAMED SPRING	NW	SW	2	9N	5W	MD	4,000 GPD	APR 1-DEC 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING
16488 P-11170	7/26/55	JOE STERN	9N/5W-8E1	UNNAMED STREAM POPE CREEK	SW SW	NW SW	8 5	9N 9N	5W 5W	MD MD	65 AFA 140 AFA	OCT 1-JUL 31	IRRIGATION, STOCKWATERING
16572 P-11864	9/ 1/55	DAVID & LAURA MOSKOWITE	12N/7W-15P1	CLAYTON CREEK	SW	NE	15	12N	7W	MD	400 AFA	NOV 1-MAY 1	IRRIGATION
16613 P-12260	9/19/55	JOHN A. BURNS ET AL		AETNA CREEK	NW	SE	2	9N	6W	MD	40 AFA	NOV 1-MAY 1	IRRIGATION, STOCKWATERING
16776 L-6425	12/ 8/55	GEORGE W. NUNES		NORTH FORK CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	825 GPD	JAN 1-DEC 31	DOMESTIC
16922 P-11300	3/ 8/56	MADLYN R. MORTARA		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	1,800 GPD	JAN 1-DEC 31	DOMESTIC
16923 L-6231	3/ 8/56	CHARLES L. LAMP		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	700 GPD	JAN 1-DEC 31	DOMESTIC

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16924 L-5986	3/ 8/56	EARLE M. & MARGARET K. HANSON		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	650 GPD	JAN 1-DEC 31	DOMESTIC
16925 L-6311	3/ 8/56	GEORGE M. COOLEY & MABEL V. McDOWELL		CALLAYOMI BROOK	SW	NE	14	11N	8W	MD	550 GPD	JAN 1-DEC 31	DOMESTIC
16960 P-10990	3/21/56	MANUEL & CLARA ABREU	8N/5W-12E1	MAXWELL CREEK	SW	NW	12	8N	5W	MD	14.5 AFA	NOV 1-JUN 1	IRRIGATION, STOCKWATERING
16984 L-6533	4/ 3/56	EMILE A. & HELEN GRAND		SPRING TRIBUTARY TO KELSEY CREEK	NE	SE	10	11N	8W	MD	8,100 GPD	JAN 1-DEC 31	DOMESTIC
17007 P-10991	4/16/56	MANUEL & CLARA ABREU		UNNAMED STREAM	NW	SE	1	8N	5W	MD	6 AFA	NOV 1-JUN 1	STOCKWATERING
17153 P-10834	6/25/56	L.G. WARNER		SODA CREEK	NE	NW	21	12N	6W	MD	10,000 GPD	JUL 1-NOV 1	IRRIGATION, DOMESTIC, STOCKWATERING
17295 P-10887	9/25/56	ROBERT M. & PAUL S. MEYERKAMP		UNNAMED STREAM	SW	NE	20	9N	5W	MD	12 AFA	NOV 1-JUN 1	IRRIGATION, DOMESTIC, STOCKWATERING
17331 P-11074	10/19/56	RALPH K. DAVIES	11N/7W-32C1	BEAR CANYON CREEK	NW	NE	36	11N	8W	MD	250 AFA	NOV 1-APR 1	IRRIGATION
17464 L-6117	2/13/57	BUCK L. HANNON & FRANK W. HAILEY		UNNAMED STREAM	SE	NE	26	10N	7W	MD	625 GPD	JAN 1-DEC 31	DOMESTIC
17476 P-10973	2/21/57	GORDON R. KIRKPATRICK	9N/5W-19A1	BURTON CREEK	NE	NE	19	9N	5W	MD	20 AFA	NOV 1-MAR 1	IRRIGATION, DOMESTIC, MISC.
17555 P-11119	4/22/57	LAURENCE L. & THELMA E. GROTEGUTH	9N/5W-22K1	UNNAMED STREAM	NW	SE	22	9N	5W	MD	33 AFA	NOV 1-JUN 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING
17557 P-11107	4/22/57	CLIVE J. & IOLA I. ZEMLICKA		UNNAMED STREAM	SE	SE	2	8N	5W	MD	14 AFA	NOV 1-JUN 1	IRRIGATION, DOMESTIC, STOCKWATERING
17823 P-11379	9/13/57	JOHN F. FREITAS		UNNAMED STREAM	SW	NW	27	9N	5W	MD	6 AFA	MAR 15-JUN 30	IRRIGATION, DOMESTIC, STOCKWATERING

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17847 P-11692	10/15/57	ARTHUR & MARGARET LA ROCQUE	12N/2W-22Q1	TRIBUTARY TO COPSEY CREEK	SW	SE	22	12N	7W	MD	2 AFA	JAN 1-MAR 30	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING, FISH CULTURE
17856 P-11436	10/22/57	PATRICK C. & ESTHER EAKLE		UNNAMED STREAM	NE	NW	27	9N	5W	MD	2 AFA	MAR 15-JUL 15	IRRIGATION, DOMESTIC, STOCKWATERING
17979 P-12007	2/ 6/58	GEORGE MOSKOWITE		UNNAMED STREAM	SE	SW	9	7N	3W	MD	5 AFA	NOV 1-MAY 15	STOCKWATERING
17980 P-12008	2/ 6/58	GEORGE MOSKOWITE		UNNAMED STREAM	SE	SW	9	7N	3W	MD	8 AFA	NOV 1-MAY 15	STOCKWATERING
18024 L-6604	3/ 4/58	WILLIAM H. GRAHAM	13N/10W-14N1	TRIBUTARY TO DONOVAN DRY CREEK	SE	SE	15	13N	10W	MD	70 AFA	NOV 1-MAY 31	IRRIGATION
18165 P-11751	5/29/58	MIDDLETOWN COUNTY WATER DISTRICT		DRY CREEK	NE	NE	8	10N	7W	MD	7,000 AFA	NOV 1-MAY 30	IRRIGATION, DOMESTIC, RECREATIONAL
18253 P-11728	8/ 6/58	SAMUEL MONDERER & ABE VIZGART		BENMORE CANYON	SE	SE	9	14N	6W	MD	0.25 CFS	JAN 1-DEC 31	IRRIGATION, STOCKWATERING
				BENMORE CANYON	NE	NE	16	14N	6W	MD	0.25 CFS		
				NORTH FORK CACHE CREEK	NW	SW	9	14N	6W	MD	0.05 CFS		
18254 P-11729	8/ 6/58	SAMUEL MONDER & ABE VIZGART		SPRING TRIBUTARY TO BENMORE CANYON	SW	SW	10	14N	6W	MD	5,000 GPD	JAN 1-DEC 31	DOMESTIC
18405 P-13122	11/12/58	THE USIBELLI COAL MINE, INCORPORATED		MAXWELL CREEK	SE	SW	26	9N	5W	MD	1,500 AFA	NOV 1-MAR 1	IRRIGATION, RECREATIONAL
18490 P-11948	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	SW	10	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18491 P-11949	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	SW	10	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18492 P-11950	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	NW	10	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18493 P-11951	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SW	NW	14	7N	3W	MD	20 AFA	OCT 1-JUNE 1	STOCKWATERING

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18494 P-11952	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SW	NW	13	7N	3W	MD	25 AFA	OCT 1-JUN 1	STOCKWATERING
18495 P-11953	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	NE	SW	22	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18496 P-11954	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	NE	SE	10	7N	3W	MD	20 AFA	OCT 1-JUN 1-	STOCKWATERING
18497 P-11955	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	NE	SW	34	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18498 P-11956	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	SW	34	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18499 P-11957	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	NE	SE	34	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18500 P-11958	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	NW	SE	22	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18501 P-11959	1/27/59	HARRY & MARJORIE J. CARLSON	8N/3W-27D1	UNNAMED STREAM	SW	SW	22	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18502 P-11960	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	NW	23	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18503 P-11961	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	NW	34	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18504 P-11962	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	NW	SW	12	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18505 P-11963	1/27/59	HARRY & MARJORIE J. CARLSON		WRAGG CREEK	NE	NE	14	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18506 P-11964	1/27/59	HARRY & MARJORIE J. CARLSON		UNNAMED STREAM	SE	NE	28	8N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18507 P-11965	1/27/59	HARRY & MARJORIE J. CARLSON		EAST MITCHEL CANYON	NW	NW	12	7N	3W	MD	20 AFA	OCT 1-JUN 1	STOCKWATERING
18510 P-11896	1/29/59	GEORGE MOSKOWITE		UNNAMED STREAM	NW	NE	21	7N	3W	MD	10 AFA	NOV 1-JUN 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING, FISH CULTURE

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18613 P-12904	3/27/59	ALDEN M. & ELLA M. SPIERS		UNNAMED STREAM	SE	SE	5	11N	7W	MD	0.25 CFS 6 AFA	JAN 1-DEC 31 NOV 1-MAY 1	DOMESTIC, RECREATIONAL, FISH CULTURE
				BIG CANYON CREEK	NE	SE	5	11N	7W	MD	0.25 CFS 6 AFA	JAN 1-DEC 31 NOV 1-MAY 1	
18647 P-13123	4/15/59	THE USIBELLI COAL MINE, INCORPORATED		MAXWELL CREEK	SE	SW	26	9N	5W	MD	500 AFA	NOV 1-MAR 1	IRRIGATION, RECREATIONAL
18667 P-12340	4/27/59	LAKE COUNTY FC & WCD		HIGHLAND CREEK	SE	NW	30	13N	9N	MD	1,000 AFA	JAN 1-DEC 31	RECREATIONAL
18734 P-12117	5/22/59	JOHN B. & RAMONA D. HUGHES		UNNAMED STREAM	SW	NE	2	15N	10W	MD	300 GPD 5 AFA	JAN 1-DEC 31 NOV 1-JUN 1	IRRIGATION, DOMESTIC
18834 P-12330	6/29/59	FRANK E. GROSS		UNNAMED STREAM	SE	SW	10	10N	7W	MD	14 AFA	SEP 1-JUN 30	IRRIGATION, RECREATIONAL, STOCKWATERING, FISH CULTURE
18866 P-12190	7/21/59	GEORGE H. & JUANITA H. LANGFORD		MIDDLE CREEK	NW	SW	7	7N	3W	MD	0.1 CFS	MAY 1-DEC 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING, FISH CULTURE
				CAPELL CREEK	NW	SW	6	7N	3W	MD	0.9 CFS 47 AFA	MAY 1-DEC 1 DEC 1-APR 1	
18939 P-12212	8/26/59	ARTHUR P. JR. & BARBARA R. WANDTKE		UNNAMED STREAM	NW	NE	1	9N	6W	MD	48 AFA	OCT 1-MAY 1	IRRIGATION, MISC.
18949 P-12287	8/28/59	FRANKLIN F. OFFNER		UNNAMED STREAM	NW	SE	12	9N	6W	MD	47 AFA	OCT 1-APR 30	IRRIGATION, DOMESTIC, STOCKWATERING
19074 P-12343	11/ 9/59	W. KENNETH & MARJORIE GAFFNEY		UNNAMED STREAM	NW	SW	36	10N	6W	MD	20 AFA	NOV 1-APR 15	IRRIGATION, RECREATIONAL
					SW	SW	36	10N	6W	MD			
19127 P-12892	12/ 9/59	FRANKLIN F. OFFNER & N. K. BLANCHARD		UNNAMED STREAM	NW	NW	18	9N	5W	MD	200 AFA	NOV 1-MAY 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING
19318 P-12563	3/23/60	HAZEN A. DENNIS		UNNAMED STREAM	NE	NE	5	10N	7W	MD	35 AFA	SEP 1-JUN 1	IRRIGATION, STOCKWATERING, FISH CULTURE

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TABLE C-1 (Continued)
APPLICATIONS TO APPROPRIATE WATER IN
PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT
(Filed with State Water Rights Board as of January 1, 1963)

Application number and Status*	Date filed	Present owner	DWR ** diversion location	Source	Location of point of diversion						Amount	Period of diversion	Purpose
					¼	¼	Sec.	Tp.	R.	B & M			
19374 P-12679	4/21/60	FRANKLIN F. OFFNER		UNNAMED STREAM UNNAMED STREAM	NE NW	SW SW	12 12	9N 9N	6W 6W	MD MD	40 AFA 30 AFA	NOV 1-MAY 1 NOV 1-MAY 1	IRRIGATION, DOMESTIC, RECREATIONAL, STOCKWATERING
19501 P-12941	6/22/60	LEROY E. & WILMA L. GRAY		UNNAMED STREAM	SE	NW	16	7N	3W	MD	140 AFA	NOV 15-APR 15	IRRIGATION, MISC.
19512 P-12942	6/30/60	GEORGE W. & ONIDA M. RAMOS		WEST FORK HERNDON CREEK	NW	SW	7	12N	6W	MD	45 AFA	SEP 1-MAY 1	IRRIGATION, RECREATIONAL, STOCKWATERING, FISH CULTURE
19567 P-12958	7/21/60	WILLIAM E. & GERALDINE F. ZUERNER		UNNAMED STREAM	SE	SE	36	10N	6W	MD	10 AFA	OCT 1-MAY 1	IRRIGATION, MISC.
19582 P-12934	7/26/60	R.W. JOHNSON & W.F. BOTTOMS		UNNAMED STREAM	NE	NE	18	10N	6W	MD	49 AFA	OCT 1-JUN 1	IRRIGATION, MISC.
19656 P-12845	8/12/60	E.H. CHARLES & HAZEL D. RUNGE		UNNAMED STREAM	NE	SE	6	9N	5W	MD	4 AFA	OCT 1-MAY 1	IRRIGATION, DOMESTIC, RECREATIONAL, FIRE PROTECTION
19884 P-13056	12/20/60	LOUIS GREGORIS & RONALD L. FERRY		JERICHO CREEK	SW	NE	5	11N	5W	MD	0.38 CFS 5 AFA	MAY 1-NOV 1 NOV 1-MAY 1	IRRIGATION
19885 P-13057	12/20/60	LOUIS GREGORIS & RONALD L. FERRY		HUNTING CREEK	SE	NE	15	11N	5W	MD	0.63 CFS	MAY 1-NOV 1	IRRIGATION
19890 P-13240	12/21/60	INVESTMENT OPERATING CORPORATION		BUCKSNORT CREEK BUCKSNORT CREEK BUCKSNORT CREEK BUCKSNORT CREEK BUCKSNORT CREEK	SE SW NE NW	SE NW SE NE	9 3 34 2	10N 10N 11N 10N	6W 6W 6W 6W	MD MD MD MD	12.5 CFS 1,700 AFA 0.033 CFS 2,098 AFA 4.5 AFA	MAR 1-OCT 31 SEP 15-JUN 30 NOV 1-FEB 28 SEP 15-JUN 30 SEP 15-JUN 30	IRRIGATION, STOCKWATERING
19909 P-13588	1/ 9/61	JOSIAH N. KNOWLES & JESSIE K. CONNELL		SMITTLE CREEK	SE	SE	35	9N	4W	MD	1,416 AFA	OCT 1-JUN 30	DOMESTIC, RECREATIONAL, STOCKWATERING
19914 PEND.	1/11/61	CRESCENT PARK REALTY COMPANY		CAPELL CREEK	SE	SW	29	7N	3W	MD	1 CFS 1,100 AFA	MAR 1-JUN 1 SEP 1-MAY 31	IRRIGATION, DOMESTIC, RECREATIONAL
19934 PEND.	1/27/61	U.S. BUREAU OF RECLAMATION		PUTAH CREEK	SW	NE	29	8N	2W	MD	20 CFS 7,500 AFA	JAN 1-DEC 31 NOV 1-MAY 31	MUNICIPAL, MISC.
19964 P-13229	2/ 6/61	MYRON D. & EVELYN I. WALKER		UNNAMED STREAM	SW	SW	9	10N	4W	MD	5 AFA	NOV 1-MAY 1	STOCKWATERING

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PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT
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					¼	¼	Sec.	Tp.	R.	B & M			
20009 P-13166	2/27/61	U.S. Mendocino National Forest		Unnamed Spring	SE	SW	33	15N	8W	MD	300 GPD	Jan 1-Dec 31	Domestic, Fire protection
20042 P-13356	3/20/61	Norman B. Livermore & Sons		Tributary to St. Helena Creek	NE	NE	36	10N	7W	MD	125 AFA	Oct 1-Jun 1	Irrigation, Domestic, Recreational, Fish culture
20060 Pend.	3/30/61	California Leisure Lands Inc. et al		Tributary to Pope Creek	NW	SE	9	9N	5W	MD	500 AFA	Nov 1-Jul 1	Irrigation, Domestic, Misc.
				Pope Creek	SW	SE	9	9N	5W	MD			
				Unnamed Stream	SW	NW	9	9N	5W	MD			
20061 Pend.	3/30/61	Dick Week		Pope Creek	SE	SW	10	9N	5W	MD	500 AFA	Nov 1-Apr 30	Irrigation, Misc
20089 Pend.	4/17/61	Raymond G. & Ruth L'Esperance		Unnamed Spring	NW	NE	6	11N	8W	MD	0.25 CFS		Irrigation, Domestic, Recreational, Stockwatering, Fish culture
				Cow Canyon Creek	SE	NE	6	11N	8W	MD	20 AFA		
20107 Inc.	5/ 3/61	George Moskowite		Tributary to Capell Creek	SW	SW	34	7N	3W	MD	400 AFA	Nov 1-Jul 1	Irrigation, Domestic, Recreational, Fire protection Fish culture
20145 P-13628	5/23/61	E.N. & Illa M. Faria		Spring tributary to Putah Creek	SW	NE	14	11N	8W	MD	625 GPD	Jan 1-Dec 31	Domestic
20152 P-13494	5/31/61	Manuel & Gladys Dutra	7N/4W-25H1	Unnamed Stream	NE	NE	25	7N	4W	MD	85 AFA	Nov 1-May 1	Irrigation, Stockwatering
				Unnamed Stream	SE	NE	25	7N	4W	MD			
				Capell Creek	SW	NW	30	7N	3W	MD			
20335 P-13194	7/31/61	Rufino Fernandes		Cassidy Creek	NW	SW	22	10N	6W	MD	35 AFA	Oct 1-May 30	Irrigation, Recreational, Stockwatering
20370 P-13440	8/29/61	James M. & James H. Connor		Tributary to Pope Creek	NE	SW	11	9N	5W	MD	35 AFA	Nov 1-May 1	Irrigation, Stockwatering, Fish culture
				Pope Creek	SW	SE	11	9N	5W	MD	0.25 CFS	Jan 1-Dec 31	
20371 P-13441	8/29/61	James M. & James H. Connor		Spring tributary to Pope Creek	SE	SE	2	9N	5W	MD	778 GPD	Jan 1-Dec 31	Domestic Stockwatering

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PUTAH-CACHE CREEKS HYDROGRAPHIC UNIT
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					¼	¼	Sec.	Tp.	R.	B & M			
20461 P-13709	10/31/61	HERMAN HAUS		UNNAMED STREAM	SW	NE	29	9N	5W	MD	14 AFA	OCT 1-MAY 1	IRRIGATION, RECREATIONAL, FIRE PROTECTION
20518 P-13497	12/ 7/61	U.S. MENDOCINO NATIONAL FOREST		UNNAMED SPRING	NE	SW	7	15N	7W	MD	500 GPD	JAN 1-DEC 31	DOMESTIC, WILDLIFE PROPAGATION
20549 P-13648	1/ 8/62	GEORGE & BEATRICE STORMAN		UNNAMED STREAM	NW	NE	35	10N	5W	MD	30 AFA	NOV 1-APR 30	IRRIGATION, RECREATIONAL, FIRE PROTECTION FISH CULTURE
20639 P-13788	3/ 6/62	A.W. HOFER		HARRIS CREEK	SW	SW	35	12N	7W	MD	45 AFA	SEP 15-APR 15	IRRIGATION, STOCKWATERING
20663 INC.	3/20/62	WM. D. KIRKPATRICK & CHARLES M. BLACK		UNNAMED CREEK	SW	NE	29	12N	5W	MD	300 AFA	NOV 1-APR 1	IRRIGATION, STOCKWATERING
20695 PEND.	4/ 4/62	ROBERT J. LASSETTER		UNNAMED STREAM	SW	SW	36	10N	6W	MD	20 AFA	NOV 1-JUN 15	IRRIGATION, DOMESTIC, RECREATIONAL, FIRE PROTECTION
20772 PEND.	5/14/62	RALF H. & HARRIET STINSON		GALLAGHER CREEK	NE	SW	17	11N	6W	MD	313.6 AFA	OCT 1-MAY 1	IRRIGATION, RECREATIONAL, FISH CULTURE
20774 PEND.	5/17/62	M.L. KUGELMAN		UNNAMED STREAM	SE	NW	10	12N	7W	MD	25 AFA	OCT 1-JUN 1	STOCKWATERING, RECREATIONAL, FISH CULTURE
20781 PEND.	5/21/62	CHARLES SORENSEN		UNNAMED STREAM	NW	NW	5	11N	5W	MD	5 AFA	OCT 1-JUN 1	STOCKWATERING
				UNNAMED STREAM	NE	NE	8	11N	5W	MD			
				JOHN THOMAS CREEK	NE	SW	8	11N	5W	MD			
				UNNAMED STREAM	NE	SE	9	11N	5W	MD			
20856 INC.	7/16/62	HIGHLANDS WATER CO.		CLEAR LAKE	SE	NW	28	13N	7W	MD	40 CFS	OCT 1-SEP 30	MUNICIPAL
20857 INC.	7/16/62	LAKE COUNTY F. C. & W. C. D.		CLEAR LAKE						MD	100 CFS	OCT 1-SEP 30	IRRIGATION, DOMESTIC, MUNICIPAL
20858 INC.	7/16/62	LAKE COUNTY F. C. & W. C. D.		KELSEY CREEK		NE	24	12N	9W	MD	57,000 AFA	OCT 1-JUL 1	IRRIGATION, DOMESTIC, MISC.

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					¼	¼	Sec.	Tp.	R.	B & M			
20859 Inc.	7/16/62	Lake County FC & WCD		Middle Creek		NE	15	16N	10W	MD	12,700 AFA	Oct 1-Jul 1	Irrigation, Domestic, Misc.
20860 Inc.	7/16/62	Lake County FC & WCD		Seigler Canyon Creek		NE	9	12N	7W	MD	10,000 AFA	Oct 1-Jul 1	Irrigation, Domestic, Misc.
20861 Inc.	7/16/62	Lake County FC & WCD		Burns Creek		NW	14	13N	7W	MD	3,000 AFA	Oct 1-Jul 1	Irrigation, Domestic, Misc.
20862 Inc.	7/16/62	Lake County FC & WCD		Scotts Creek		NE	22	14N	10W	MD	50,000 AFA	Oct 1-Jul 1	Irrigation, Domestic, Misc.
20863 Inc.	7/16/62	Lake County FC & WCD		Copsey Creek		NE	11	12N	7W	MD	38,000 AFA	Oct 1-Jul 1	Irrigation, Domestic, Misc.
20876 Inc.	7/27/62	Investment Operating Corporation		Unnamed Stream	NE	NW	8	10N	5W	MD	5.227 CFS 2,600 AFA	Mar 1-Oct 31	Irrigation, Stockwatering
				Routan Creek	SW	NW	8	10N	5W	MD			
20877 Inc.	7/27/62	Investment Operating Corporation		Unnamed Stream	NW	SW	4	10N	6W	MD	0.033 CFS 500 AFA	Nov 1-Feb 28 Sep 15-Jun 30	Irrigation, Stockwatering
				Unnamed Stream	NE	NE	4	10N	6W	MD	200 AFA	Sep 15-Jun 30	
				Unnamed Stream	NW	NW	3	10N	6W	MD	495 AFA	Sep 15-Jun 30	
				Bucksnort Creek	SE	SE	9	10N	6W	MD	280 AFA	Sep 15-Jun 30	
20905 Pend.	8/20/62	G. Robert & Mary Agnes Riga		Unnamed Spring	SW	NE	14	11N	8W	MD	625 GPD	Jan 1-Dec 31	Domestic
20930 Inc.	9/ 5/62	Robert E. & Beverley Kauffman		Unnamed Stream	NE	NE	36	12N	5W	MD	49 AFA	Oct 1-Apr 30	Irrigation, Stockwatering
					NE	SW	31	12N	4W	MD			
20931 Inc.	9/ 5/62	Robert E. & Beverley Kauffman		Davis Creek	NE	NE	25	12N	5W	MD	49 AFA	Oct 1-Apr 30	Irrigation, Stockwatering
20981 Inc.	10/16/62	Woodrow W. & Alice Copsey		Unnamed Creek	SE	SE	23	12N	7W	MD	700 AFA	Oct 1-Jun 1	Irrigation, Recreational, Stockwatering, Fish culture
21016 Inc.	11/15/62	Martin & Doris Quinn		Unnamed Stream	SW	NE	9	12N	7W	MD	8 AFA	Oct 1-May 1	Stockwatering
21075 Inc.	12/ 7/62	Loren L. Fallstead		Unnamed Stream	NW	NE	11	11N	6W	MD	5 AFA	Oct 1-Jun 1	Recreational, Stockwatering, Fish culture, Wildlife propagation

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APPENDIX D

COURT DECREES

C O P Y

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA,
IN AND FOR THE COUNTY OF MENDOCINO

M. M. GOPCEVIC, and THE HOTALING ESTATE CO., a corporation, and GEORGE T. RUDDICK, Plaintiffs, vs. YOLO WATER AND POWER COMPANY, a corporation, and YOLO WATER AND POWER CORPORATION, a corporation, Defendants, COUNTY OF LAKE and LISLE STUBBS et al, Intervenor	DECREE

Pursuant to the stipulation of all parties herein reduced to writing and filed in open court on the 7th day of October, 1920, agreeing and consenting that the following judgment and decree be entered in the above entitled action, and upon evidence taken; and finding being waived in open court by all parties;

IT IS HEREBY ORDERED ADJUDGED AND DECREED AS FOLLOWS:

That the defendant herein be perpetually enjoined and restrained from excavating or deepening the outlet of Clear Lake, being the Clear Lake mentioned in the pleadings herein, to any depth greater than four feet below the zero mark on the Rumsey gauge at Lakeport, County of Lake, State of California, which said gauge is hereinafter more particularly referred to; and from widening straightening or otherwise interfering with said outlet, except as may be necessary to

carry out the provisions of this decree, all of such work to be with the approval first obtained and under the supervision of the State Railroad Commission of California, or the members thereof; and this injunction shall include the said defendants, their and either of their, officers, agents, servants, employees successors and assigns, and each and all officers and agents of either of them, and all persons acting under or in aid of them or either of them.

That the agents, servants, employees, successors and assigns of the said defendants and the said defendants and each of them, and all persons acting under or in aid of them or either of them be perpetually enjoined and restrained from at any time, or in any way raising the level of said lake in excess of 7.56 feet above zero on said Rumsey Gauge, and from at any time or at any way lowering the level of said lake below zero on said Rumsey Gauge; provided, however, that the rise of said Clear Lake, by reason of storm or flood conditions beyond the control of said defendants, or either of them, to a level in excess of 7.56 feet above zero on said Rumsey Gauge, but in no event to a level in excess of 9.00 feet above zero on said Rumsey Gauge, for any period not exceeding ten successive days, shall not be deemed a violation hereof;

The zero mark on said Rumsey Gauge is 20.1 feet below center of large concrete star in northeast corner of court house yard at said Lakeport, and 21.56 feet below iron step at front entrance to Bank of Lake Building at southeast corner of Main Street and Second Street, in said Lakeport;

That said defendants, and each of the, their officers, agents, employees, successors and assigns and all persons acting under or in aid of them or either of them, be perpetually enjoined and restrained from drawing off from said Clear Lake an amount of water which, inclusive of evaporation and

other losses, will at any time reduce the level of said lake below zero on said Rumsey Gauge, and the said defendants, and each of them, their officers, agents, employees, successors and assigns, be perpetually enjoined and commanded to draw off from said lake an amount of water which, inclusive of evaporation and other losses will reduce the level of the lake so that the elevation thereof on the following dates shall not exceed the following percentages of the actual level on April 15th of each year;

May 1, 97%, June 1, 89%, July 1, 79%, August 1, 69% and September 1, 58%.

That said defendants and each of them, their officers, agents, employees, successors and assigns, be perpetually enjoined and restrained from drawing off from said lake, during the irrigation season an amount of water which, inclusive of evaporation and other losses shall lower the level of said lake more than two feet in any one month;

It is hereby specially adjudged and decreed that notwithstanding the limits of depression of said lake waters hereinabove described the said defendants, and each of them, their agents, employees, successors and assigns, shall not draw off or allow, and they and each of them are enjoined and restrained from drawing off or allowing the waters of said lake to flow out of said lake at any time at such a rate as that, taking into account evaporation and other losses, the water of said lake shall at the lowest level of any year be below zero on said Rumsey Gauge;

It is further adjudged and decreed that the said defendants, or either of them, shall at or about the specific dates last hereinabove mentioned, notify in writing, through the mails or otherwise, the parties hereto and as well such owners or occupants of land on the rim of said lake as shall register their names and addresses with the defendant, Yolo Water and Power Company, at its office in Woodland, Yolo County, California, of the then existing and respective levels of the said lake.

The drawing off of the water of said lake under the conditions aforesaid, shall be by and through the dam and gates mentioned in the pleadings herein, and the administration conduct and operation of said dam and gates shall be responsive to and in full and fair execution of such conditions, and shall at all times be by and under the State Railroad Commission of California, or the members thereof;

If at any time the injunctive provisions of this decree shall be violated, or departed from in matter of substance and all the provisions of this decree are for this purpose taken to be injunctive then and in such events the said defendants and each of them are hereby enjoined and commanded forthwith thereupon, in the manner and to the extent hereinafter provided, or in default thereof it shall be competent to the plaintiffs or any or either of them, or in default of action in the promises by the plaintiffs or any or either of them, it shall be competent to the interveners, or any or either of them, and said parties are accordingly hereby authorized, at the expense of defendants, their successors and assigns to restore and maintain at the "Grigsby Riffle" mentioned in the complaint herein, but above the present mouth of "Seigler Creek" a suitable and substantial structure or barrier, the crest of which shall not exceed one foot above zero on said Rumsey Gauge except as hereinafter provided;

But it is further and specifically decreed that if at any time, for any physical reason, or otherwise, said dam should cease in any substantial sense, to function in respect to the operation of the same as hereinabove referred to, then and in that event the crest of the aforesaid structure or barrier may be increased and maintained to an elevation of two feet above zero on said Rumsey Gauge, said structure and barrier shall exist and be maintained

at all times when a dam shall cease to function as provided in this decree for the operation of the same; provided however that the failure of the defendants or either of them to comply substantially with the terms of this decree, due to temporary, unavoidable causes shall not be deemed a violation of this decree;

It is further adjudged that this decree does not adjudicate upon the extent of the several riparian or littoral rights of any of the parties hereto in the said Clear Lake or the land adjacent thereto nor upon any rights or claims of any of said parties to water rights therein, nor in or over such adjacent lands, and that the injunctive relief hereby granted and provided for is not based upon a waiver by any of said parties of any such substantive rights of claims aforementioned but is subject to full reservations on the part of all and each of said parties of all said substantive rights or claims aforesaid;

It is further ordered adjudged and decreed that the said dam and the operation thereof shall at all times be subject to reasonable access and inspection by the parties hereto as well as any person owning land riparian or littoral to said Clear Lake and their duly authorized agents or attorneys; but if any question should arise in respect to the right of any such person or persons to such access and inspection, the same shall be remitted to the State Railroad Commission of California, or the members thereof for final determination.

That all claims for damages involved in this action or on account of the issuance of the temporary restraining order or preliminary injunction herein are waived and adjudged to be fully settled;

That each party to this action shall pay his own costs.

The signing and filing of this decree shall be deemed to be noticed of the terms thereof and effective as service of any injunctive process consequent thereon.

Done in open Court the 7th day of October, 1920.

A. B. McKENZIE
Judge.

CERTIFIED: October 7th, 1920, by the Clerk of said Court to be a full, true and correct copy of the original on file and of record in his office.

ENDORSED: Filed October 7, 1920, HALE PRATHER, Clerk
by W. H. PRATHER, Deputy

RECORDED: October 8th, 1920, in vol. 60 of Deeds, at page 49.
Records of Lake County, California.

C.C. McDONALD,
Attorney for Plaintiffs,
Woodland, California.

C O P Y

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA,

IN AND FOR THE COUNTY OF YOLO

MARY E. BEMMERLY and AGNES H. BEMMERLY,

Plaintiffs,

vs.

THE COUNTY OF LAKE, a Political Subdivision of the State of California, E. L. HERRICK, W. E. REICHERT, L. D. KIRKPATRICK, L. L. BURGER and J. S. KELSAY, as and comprising the Board of Supervisors of the County of Lake, State of California, THE BOARD OF SUPERVISORS OF THE COUNTY OF LAKE, STATE OF CALIFORNIA, E. L. HERRICK, individually and as a member of the Board of Supervisors of the County of Lake, State of California, FRANK W. NOEL, individually, W. E. REICHERT, as a member of the Board of Supervisors of the County of Lake, State of California, W. T. SMITH, individually, L. D. KIRKPATRICK, as a member of the Board of Supervisors of the County of Lake, State of California, L. L. BURGER, individually and as a member of the Board of Supervisors of the County of Lake, State of California, J. S. KELSAY, individually and as a member of the Board of Supervisors of the County of Lake, State of California, FRANK B. JOHNSON, individually and as a County Surveyor of the County of Lake, State of California, FRANK W. CLARK as Director of the Department of Public Works of the State of California, CLEAR LAKE WATER COMPANY, A CORPORATION, J. R. REEVES, JOHN DOE DREDGING COMPANY, RICHARD DOE DREDGING COMPANY, FIRST DOE, SECOND ROE AND THIRD ROE,

Defendants.

No. 8812

J U D G M E N T

This cause having been regularly called and tried by the Court, and the findings of fact and conclusions of law, and the decision thereon in writing, having been rendered, wherein judgment was ordered in favor of the plaintiffs and against the defendants hereinafter named as prayed for in the complaint and for costs,

IT IS, BY THE COURT, ORDERED, ADJUDGED AND DECREED that the defendants, The County of Lake, a Political Subdivision of the State of California, E. L. Herrick, W. E. Reichert, L. D. Kirkpatrick, L. L. Burger and J. S. Kelsay, as and comprising the Board of Supervisors of the County of Lake, State of California, the Board of Supervisors of the County of Lake, State of California, E. L. Herrick, individually and as a member of the Board of Supervisors of the County of Lake, State of California, Frank W. Noel, individually, W. E. Reichert as a member of the Board of Supervisors of the County of Lake, State of California, W. T. Smith, individually, L. D. Kirkpatrick as a member of the Board of Supervisors of the County of Lake, State of California, L. L. Burger, individually and as a member of the Board of Supervisors of the County of Lake, State of California, J. S. Kelsay, individually and as a member of the Board of Supervisors of the County of Lake, State of California, Frank B. Johnson, individually and as County Surveyor of the County of Lake, State of California, Frank W. Clark, as Director of the Department of Public Works of the State of California, and Clear Lake Water Company, a corporation, and each and all of them, and their, and each of their attorneys, agents, servants and employees and any and all persons acting under said defendants, or any of them, be, and they and each and all of them are hereby forever enjoined and restrained from in any manner widening, deepening, or enlarging the arm or slough which constitutes the outlet of the waters of and from Clear Lake into Cache Creek and from in any manner changing the said outlet so as to increase the flow of waters of and from Clear Lake into Cache Creek. The Clear Lake herein referred to is the Clear Lake described in the plaintiffs' complaint and which is located in the County of Lake, State of California.

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that plaintiffs have judgment for their costs taxed at Dollars ($)

Judgment rendered December 18, 1940.

Dal M. Lemmon
Judge of the Superior Court.

RD

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